



# After LIFE Plan

## 2018-2023

**April 2018**

*LIFECITRUS is a project with the contribution of the LIFE financial instrument of the EU*

# RECYCLING OF CITRUS INDUSTRY SCRAP INTO NATURAL ADDITIVES FOR FOOD INDUSTRIES

[www.lifecitrus.eu](http://www.lifecitrus.eu)

LIFECITRUS is a project funded by the LIFE Programme of the European Commission that has been developed in Spain and Italy from September 2015 to August 2018.

## PROJECT DESCRIPTION

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The objective of the project is to demonstrate at a semi-industrial scale an innovative process for obtaining natural food ingredients from citrus waste. The project aims to transfer technology to the business sector for the industrial implementation of the process developed for the revaluation of the by-products that they generate

and the marketing of "Clean Label" foods using the new ingredient in their formulations.

The main specific objectives of this project are:

1. Demonstrate in a semi-industrial plant the effectiveness of an innovative industrial process, capable of obtaining natural ingredients from citrus waste (lemon, orange, grapefruit and tangerine) validating its viability.
2. Disseminate among European citrus farmers, marketers and industries, associations and related public bodies that the by-products of the citrus industry should not be considered a polluting agroindustrial waste but a valuable natural raw material.
3. Promote the use of "clean labels" in the agri-food industry with natural ingredients.
4. Facilitate the preparation of low calorie jams, jellies and other food products (canned vegetables, bakery, pastry, drinks, etc.) and disseminate this knowledge to the regional, national and European food industry.
5. Transfer knowledge through workshops and training courses aimed at technicians and operators in selected sectors and open to students, graduates and environmental professionals.

## PROJECT RESULTS

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### EXPECTED RESULTS

- i. Expansion of the CTC pilot plant for the optimal realization of the innovative process on a semi-industrial scale.
- ii. Quantification and demonstration on a semi-industrial scale of the proposed procedure and the ingredients obtained. A minimum of 12 different foods will be tested, samples of each product will be characterized, in addition to the ingredients and proportions.
- iii. Economic quantification of the process and its viability.
- iv. At least 50 regional companies that belong to the sectors of interest will be directly contacted and informed.
- v. At least 60 national or European companies belonging to the selected sectors will be contacted and informed directly.
- vi. At least 30 technicians, students, graduates and professionals of the environment of scientific and technical scope will participate in the 3 calls of the programmed training course.
- vii. A project website will be created, which will be dynamic, linked to partner websites and at least 5 related websites. Its contents will be updated and will be maintained for a minimum of 5 years after the end of the project. It will be the basic communication tool of the project.
- viii. To promote participation in the project and to disseminate the results of the project, there will be 2 meetings with the press, 2 guided visits for journalists and a conference; at least 1 publication in a scientific journal and 1 publication in a technical journal; 5 articles in press, radio and / or television; 6 newsletters and 1 layman report (2000 copies). Two presentations will also be promoted in national or international congresses; 4 informative posters will be shown, and 3,000 leaflets will be produced that will be distributed selectively.
- ix. Creation of a network with at least 3 projects or initiatives related to LIFECITRUS issues.
- x. After the project has been completed, communication actions will be promoted, and the pilot plant will be in operation to carry out more tests and investigations.
- xi. Individual or cooperative initiatives will be promoted for the transfer and implementation of the proposed process.

### RESULTS OBTAINED

According to the results obtained, the byproducts of citrus processing can be valued within the industry itself through a technically feasible process. The location of the recovery plant can be a fundamental factor. Companies with a high production of citrus by-products are the main beneficiaries of the LIFECITRUS process. On the other hand, from the market research conducted, it has been observed that the companies potentially consuming the purée product show a lack of knowledge about natural ingredients that are currently marketed, and that could be substitutes for pectin.

This fact guarantees the success of the placing on the market of an ingredient such as the proposed purée once its characteristics and properties are known. The price of commercial pectin powder has been decisive to obtain a positive result as a net benefit.

The challenge of LIFECITRUS is to obtain citrus peel purees that can be applied to all types of food and not alter their organoleptic properties. This requires different stages of grinding, washing and enzymatic inactivation. As there is no similar product in the market, its inclusion in the preparation of new foods has been proven. Foods such as jams, and marmalades have been developed due to the gelling capacity of the mash, but also vegetable creams, pastry and bakery products, and products with low caloric content. For these "novel foods" a nutritional analysis has been carried out, in accordance with the EU Regulation 1169/2011. In addition, a sensory analysis has been carried out to evaluate the acceptability of food through a panel of consumers.

As benefits, it highlights that the process could be implemented in the generating company itself, expanding the value chain of citrus processing, ensuring the use of the by-product in the same industry and minimizing the generation of waste. In addition, a distinctive new product with excellent sales prospects for consumers is offered.

## COMMUNICATION STRATEGY

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The LIFECITRUS project has had an ambitious communication and dissemination plan aimed at companies in the agri-food sector, technology centers, training centers (universities and vocational and secondary training centers), public administration and the general public, at regional, national and international.

The following actions have been carried out:

The LIFE logo was included in the stationery and information posters. On the other hand, detailed information about the project and about the LIFE program are available at the participants' facilities. Brochures were produced, and the copies were distributed among the clients, interested parties and personal contacts of the personnel benefiting from the project.

Different activities have been developed to disseminate the project in workshops, courses, congresses, conferences, fairs, media (written press, digital, radio and television) and technical and scientific journals. The beneficiaries of the project will continue working on this dissemination task and making use of the promotional video of the project.  
(<https://www.youtube.com/watch?v=w9rwith5cnAU>)





### Design and maintenance of the project website.



The website is an important management tool for the Internet. Through this website, it is possible to access all the information related to the project, results obtained, Layman report, etc. The information will be available in Spanish, English and Italian with the aim of getting this information

to a greater number of readers interested in the project.

### Dissemination of project results.

The information and the results of the project were presented to different interested parties (technicians of food companies and agricultural sector, technicians of public administrations, etc.) and media, in newsletters, workshops and visits organized to the demonstration plant.



In addition, LIFE CITRUS has been present at the Conference on Customs Management in Imports and Exports (Murcia, Spain), in the Conferința "Diaspora în Cercetarea Științifică și Învățământul Superior. Din România - Diaspora și prietenii săi "2016 (Timișoara, Romania), at the EXPO

Bioenergy Fair (Cremona, Italy), at the INTERNATIONAL GOOD HERBS NATURAL FOOD INGREDIENTS Conference (Bucharest, Romania), at the Food Matters Live Fair (London, England), at the III Conference on Food Science and Technology of the University of Murcia (Murcia, Spain), at the CIBUS Fair (Parma, Italy), at the 5th International Conference on Sustainable Solid Waste Management (Athens, Greece ), at the Herbartis Project Seminar ("Adult Training of Handicraft Production of Medicinal and Aromatic Plants") (Barcelona, Spain), at the PHILIP KOTLER MARKETING FORUM (Milan, Italy), at the Fruit Attraction Fair (Madrid, Spain) , in the event Qualifood - Food Bioenergy (Cremona, Italy), in the Week of Science of Murcia (Murcia, Spain), in the Final Conference of the project Erasmus + Herbs4Youth, *of the call: KA2 - Cooperation for innovation and the exchange of good practices -Capacity Building in the field of Youth* (Murcia, Spain) and in the congress of ANQUE (Murcia, Spain).

LIFECITRUS has also collaborated in the organization of the VIII Symposium on Food Technology included in the Murcia Food Brokerage Event 2017 that was held between 9 and 10 May 2017 in Murcia, Spain.



The magazine CTC Alimentación (edited by the National Technological Center for Food and Preservation) has included a section of the project from 2015 to 2018 and a special edition in its number 66 of June 2017. Other technical and scientific journals will also publish project results LIFECITRUS.

#### Descriptive brochures.



Two dissemination brochures (also downloadable from the project website) were produced and distributed. The first brochure included descriptive information about the project, while the second brochure included project results.



#### Demonstration activities at the demonstration plant at the National Technological Center for Food and Preservation (Murcia - Spain).

Different companies and technicians of research and development at local and national level have shown interest in the operation of the demonstration plant during the implementation of



the project and the development of new foods with the obtained ingredient. In addition, companies and technicians from different countries of the EU, as well as from other non-European countries, have also known the demonstration plant and the usefulness of the new ingredient.



### Networking activities.

Meetings have been held, events have been attended and collaborations have been requested with other working groups linked to the agri-food sector to establish relationships that support the advancement of our sector in a circular economy. The detected synergies are in line with: (i) training; (ii) good practices; (iii) new foods regulations; (iv) rural development; (v) invigoration of the valuation; (vi) development of new foods; (vii) health; (viii) organic farming; (ix) carbon footprint; and (x) wastewater treatment and wastewater sludge management.



In the links section of the LIFECITRUS project website ([www.lifecitrus.eu](http://www.lifecitrus.eu)), selected LIFE projects are linked to exchange information and collaborations, as well as websites of research groups with which contact has been maintained to establish synergies.

## AFTER LIFE COMMUNICATION PLAN

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The plan is scheduled for a five years period after the completion of the project (2018-2023).

### Main goal.

Continue to disseminate the results of the project to promote the implementation of the process and raise awareness about the recycling of by-products and the new more sustainable market lines within the framework of the circular economy.

### Tasks to develop.

The tasks and the budget associated with the communication actions foreseen after the end of the EU co-financing to the LIFECITRUS project, as well as a description (as far as possible) of the means foreseen for its proper development are indicated below:

#### 1. Promotion of the project within the sector in fairs.

Attendance at business fairs and professional meetings with the aim of publicizing this LIFE project, where project brochures will be distributed.

##### **Additional Information**

When: periodically, once it is announced by the organization.	Who: Project staff / consortium.
Preparation of support material for fairs: Brochures, newsletters, posters, etc.	Budget: Own resources (working hours), € 0 additional. They will be carried out as part of the functions of the staff of the entity, assuming the general budgets.

#### 2. Participation in congresses.

Attendance to congresses to present the results of the project and promote the exchange of knowledge with technicians of the agri-food sector.

##### **Additional Information**

When: periodically, once it is announced by the organization.	Who: Project staff / consortium.
Preparation of the support material for the congresses: Power Point presentations, posters, etc.	Budget: Own resources (working hours), € 0 additional. They will be carried out as part of the functions of the staff of the entity, assuming the general budgets.



### 3. Project website and social networks.

The Web page ([www.lifecitrus.eu](http://www.lifecitrus.eu)) has been updated periodically for the duration of the project. They will be maintained for five years, maintaining the positioning of the Web in the main search engines. As during the development of the project, efforts will be implemented in the digital area with the development of documentation of dissemination of results that will be shared in social networks with stakeholders. It will also work to have a presence in the media.

#### Additional Information

When: periodically, when there is news and relevant information.	Who: Project staff / consortium.
Preparation of support material for the web: News, photographs, links of interest, etc.	Budget: Own resources (working hours), € 0 additional. They will be carried out as part of the functions of the staff of the entity, assuming the general budgets.

### 4. CTC Alimentacion Magazine.

With the results obtained, it is expected to publish in the CTC Alimentacion magazine and other specialized magazines in the agri-food sector, and for the public.

#### Additional Information

When: periodically.	Who: Project staff / consortium.
Preparation of support material for journals: Relevant results, links of interest, etc.	Budget: Own resources (working hours), € 0 additional. They will be carried out as part of the functions of the staff of the entity, assuming the general budgets.

### 5. Demonstration plant's visits.

All parties interested in visiting the LIFECITRUS process will be invited to visit the demonstration plant to obtain more knowledge about the performance / performance and results of the project. Project partners will invite companies, technicians, students, etc. to visit the facilities in the CTC, and they will give the desired information about its operation.

#### Additional Information

When: periodically, depending on the demand	Who: Project staff / consortium.
Preparation of support material for visits: Brochures, newsletters, Power Point presentations, etc.	Budget: Own resources (working hours), € 0 additional. They will be carried out as part of the functions of the staff of the entity, assuming the general budgets.

### 6. Activities of technology transfer and networking

Technology transfer activities are designed to implement the technology in large-scale installations, while networking activities allow expanding the network of contacts to multiply business/dissemination opportunities. LIFECITRUS has developed a communication and

dissemination plan capable of publicizing the work carried out and promoting its replicability in Europe. Once the project is finished, one of our priorities will be to maintain a close collaboration with the organizations with which we have worked so far: companies in the agri-food sector, farmers, public administrations and companies, technology producing companies, universities, technology centers, foundations, consultancies, professional associations, training centers, etc. In addition, the characteristics of the project favor its implementation worldwide to address problems of countries that cultivate citrus or market with them, promoting the use of natural ingredients, so that the internationalization of the project with companies and organizations that may be interested will also be maintained.

#### Additional Information

When: periodically, depending on the demand	Who: Project staff / consortium.
Preparation of support material for the transfer: Brochures, newsletters, Power Point presentations, posters, news, mailing, etc.	Budget: Own resources (working hours), € 0 additional. They will be carried out as part of the functions of the staff of the entity, assuming the general budgets.

Finally, once the project is finished, the aim is to bring LIFECITRUS closer to citizens and show the positive socio-economic impact that the project may have for the implementation area.

## PROJECT DATA

Project funded by the European Union through the LIFE Programme (Call: LIFE Environment & Resource Efficiency) LIFE14 ENV/ES/000326

**Total budget approved by the Commission: 886,397 €**

**EU Contribution: 531,836 €**

#### COORDINATOR:

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Federazione Italiana dell'Industria Alimentare  
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