

Enhancing Research and Innovation Capacity of TUBITAK MRC Food Institute on Dietary Polyphenols and Bioavailability/Bioefficiency

Grant Agreement No: 951994

PhenolAcTwin

Bioavailability and Bioefficacy of Polyphenols

What is PhenolAcTwin?

PhenolAcTwin is an EU granted project under H2020-WIDESPREAD-2018-2020 call. The main objective of PhenolAcTwin is to enhance the research and innovation capacity of TUBITAK MRC Food Institute on dietary polyphenols focusing on their bioavailability and bioefficacy via networking with CSIC, QIB, and INRAE. Key scientific aspects of PhenolAcTwin are: molecular identification of dietary polyphenols, bioavailability and biological activity evaluation of dietary polyphenols, in vivo-in vitro analysis, metabolomics and cardiovascular protective effects of dietary polyphenols.

Defined activities of PhenolAcTwin such as; exchange of young researchers, summer schools, expert visits, trainings, conferences, and seminars will help young researchers to enhance the research and innovation capacity, as well as the research profile. PhenolAcTwin will provide mutual benefit to collaborators in the areas of polyphenols, bioavailability and bioefficacy through project activities. This will maximize the impact by enabling the stakeholders (scientist, industry, including SMEs) to be better able to innovate with the availability of new tools, technologies and knowledge. By participating the project activities, food industry will benefit in all aspects of the development and production of innovative healthy food products.

WHAT'S INSIDE THIS ISSUE?

**Details about
PhenolAcTwin
Completed Activities
Up-coming Events**

WELCOME TO THE SECOND RELEASE OF PHENOLACTWIN NEWSLETTER!

PhenolAcTwin

Enhancing Research and Innovation Capacity of TUBITAK MRC Food
Institute on Dietary Polyphenols and Bioavailability/Bioefficiency



CSIC

INRAE



As PhenolAcTwin Team members we would like to welcome you to the second issue of PhenolAcTwin newsletter. The aim of this publication is to keep you informed of all events, outcomes and updates of PhenolAcTwin. Newsletters of PhenolAcTwin will be published annually in the Project webpage.

We are pleased to share the second PhenolAcTwin newsletter with you, and look forward to sharing more news with you soon. Enjoy!

*In this newsletter some pictures were obtained from Freepik.



WEB PAGE

If you like to learn more about PhenolAcTwin project you can visit our web page <https://phenolactwin.eu/>

SOCIAL MEDIA

The PhenolAcTwin communication channels are open, join us!

PhenolAcTwin is also on LinkedIn and Twitter.
FOLLOW US!



HORIZON 2020



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COORDINATOR



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PROJECT PARTNERS

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Araştırma Merkezi Gıda Enstitüsü /
Türkiye



CEBAS-CSIC

Agencia Estatal Consejo
Superior De
Investigaciones
Científicas / Spain

QUADRAM INSTITUTE

Quadram Institute
Bioscience/United
Kingdom

INRAE

Institut National De
Recherche Pour
L'agriculture,
L'alimentation Et
L'environnement /
France



ACTIVITIES

2nd External Joint Research Project Group Meeting

October 4, 2022

External Joint Research Project Group Meeting of the PhenolAcTwin project was held on October 4th, 2022. Project partners from TÜBİTAK, CSIC, QIB, and INRAE and external members attended the meeting. At the Meeting, new experts and new areas for collaboration are discussed.



2nd Internal-Twinning Research Project Group Meeting

October 7, 2022

At the meeting, a presentation of TUBITAK MAM Food Institute was made. TÜBİTAK MAM laboratories were toured to the project partners. With the participation of project partners, a roadmap for future research and new project proposals were discussed.



ACTIVITIES

EXPERT VISIT-2



**2ND EXPERT VISIT WAS HELD ON 6 OCTOBER 2022 IN TÜBİTAK MAM LIFE SCIENCES
FOCUSING ON THE SCIENTIFIC TOPICS BELOW;**



Dr. Paul Kroon
QIB, United
Kingdom

**Specific inhibition of
VEGF-family tyrosine
receptor kinase signaling
by binding of polyphenols
directly to the receptor
ligands**



**Dr. Antonio
González-Sarrías**
CEBAS-CSIC,
Spain

**Exosomes as
nanocarriers to enhance
the tissue bioavailability
and anticancer activity of
curcumin and resveratrol**



**Dr. Christine
Morand**
INRAE, France

**Gain Clinical Evidence of
the Benefit of
Polyphenols
Consumption for Human
Health**

ACTIVITIES

Summer School-2

13-15 June, 2022

The Summer School-2 of PhenolAcTwin organized by CEBAS-CSIC in Murcia, Spain was held on 13-15 June 2022. The Summer School was focused on “Approaches for the assessment of the bioavailability and gut microbiota metabolism of polyphenols”.



Summer School-3

12-15 September, 2022

The Summer School - 3 of PhenolAcTwin organized by INRAE in Paris, France was held on 12-15 September 2022. The Summer School was focused on “Innovative approaches and tools to substantiate the link between dietary polyphenols and Health - From clinical to mechanistic research”.





ISNFF 2022

Istanbul, TURKEY

2-5 October 2022

Please set your time for October 2, 2022

►14th International Conference and Exhibition on Nutraceuticals and Functional Foods

Within PhenolAcTwin Project, 14th International Conference and Exhibition on Nutraceuticals and Functional Foods was held on October 2-5th, 2022 at Crowne Plaza İstanbul-Asia Hotel & Convention Center in İstanbul, Türkiye.

The conference includes the participation of delegates from 28 countries with 217 presentations (134 orals and 83 posters) and total participants of around 350 people.

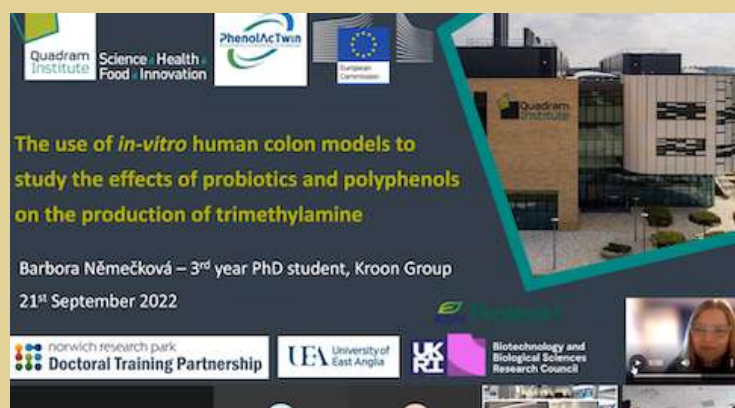
14th International Conference and Exhibition on Nutraceuticals and Functional Foods is coorganized as an activity of the Horizon 2020 – PhenolAcTwin Project, coordinated by TÜBİTAK MAM. The international scientific society and industry professionals participated intensively in the congress and fair, which included 9 keynote speakers and 134 speakers in 22 sessions.



COMPLETED

WORKSHOPS

Workshop-1 of PhenolAcTwin was organized on 20-21 September 2022 by QIB as a hybrid workshop both in Norwich, UK, and Teams.



The Workshop was focused on “In-vivo and in-vitro approaches for investigating the bioavailability and bioactivity of polyphenols”.

Quadram Institute Bioscience
www.quadram.ac.uk



COMPLETED

WORKSHOPS

Workshop-2 of PhenolAcTwin organized by CEBAS-CSIC in Murcia, Spain was held on 16-17 June 2022.



The Workshop was focused on “Polyphenols and human health: the role of bioavailability and gut microbiota metabolism”.

CEBAS-CSIC

www.cebass.csic.es



TRAININGS

SHORT-TERM ON-SITE/VIRTUAL

HUMAN NUTRITION UNIT - INRAE

The research areas of INRAE and of the Human Nutrition Unit of Clermont-Ferrand including clinical trials, how to investigate at the cellular and molecular levels the effect of polyphenols on vascular function and endothelial dysfunction to identify their mechanisms of action, develop new biomarkers of health and to identify new mediators of the health effects of polyphenols by focusing on the oxylipins signature, the topic “Food metabolome” which is the unique approach for a better and comprehensive characterization of the exposure to plant food bioactive derived metabolites present in the body after digestion. Also, The Clinical Investigation Center is visited.



TRAININGS

SHORT-TERM STAFF EXCHANGE

HEALTH BENEFITS OF DIETARY POLYPHENOLS - QIB

Researchers from TUBITAK (Dr. Oznur Karaoglu and Dr. Ozlem Aslan) visited partnering organizations on the discipline of bioavailability, and bioefficacy of polyphenols, functional foods (e.g., the use of new equipment, developing of new functional food products, extracting/analyzing phytochemicals and bioactive from plant sources, setting up human and animal studies, and design of clinical research among others).

Dr. Oznur Karaoglu and Dr. Ozlem Aslan from TUBITAK visited QIB for 1 month and studied “Characterization studies with advanced analysis techniques (LC-MS, Q-TOF) and bioavailability studies.”



TRAININGS

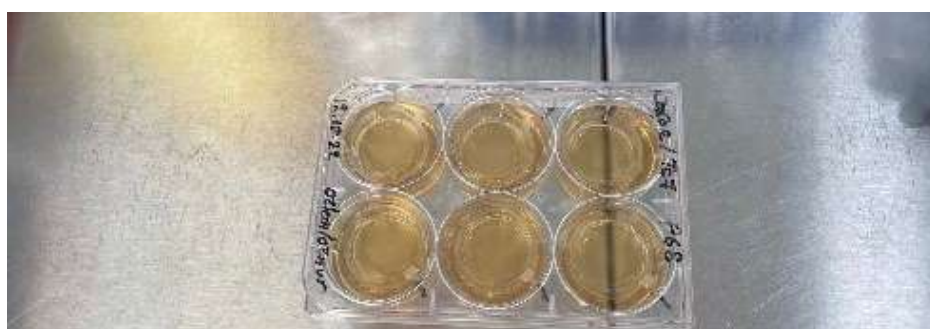
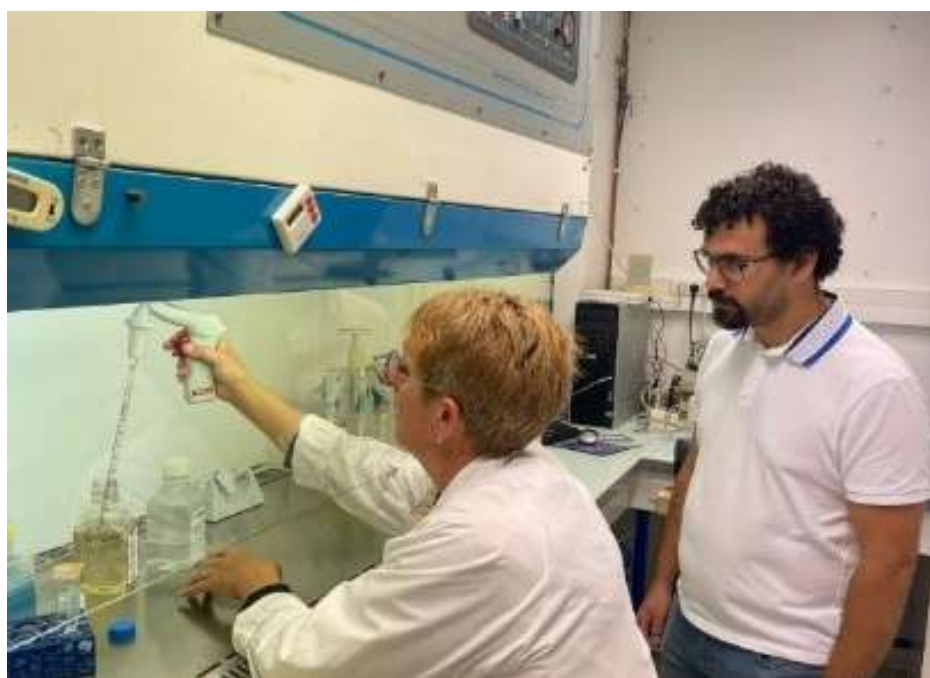
SHORT-TERM STAFF EXCHANGE

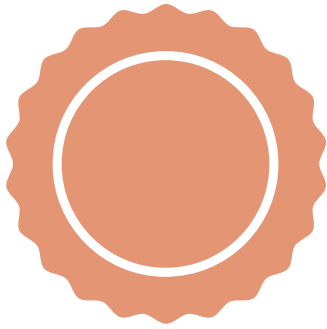
HUMAN NUTRITION UNIT - INRAE

Researchers from TUBITAK (Dr. Tarık Öztürk) visited partnering organizations on the discipline of bioavailability, and bioefficacy of polyphenols, functional foods (e.g., the use of new equipment, developing of new functional food products, extracting/analyzing phytochemicals and bioactive from plant sources, setting up human and animal studies, and design of clinical research among others).

So that researchers from TUBITAK will be visiting partnering organizations to develop their skill and career, improve networking, and prepare joint publication, and future collaborative research projects. In addition, each exchange researcher from TUBITAK will present what is learned during the training to other researchers in TUBITAK to increase the benefit from training.

Dr. Tarık Öztürk from TUBITAK visited INRAE for 2 months (July and October 2022) with a research topic of “Determination of the cytotoxicity of fermented plant products and investigation of their anti-inflammatory effects in cell culture”.





SEMINAR



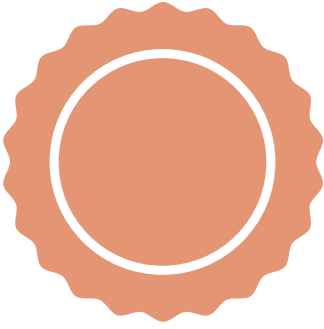
The Seminar was held on 4th of October 2022 at Crowne Plaza Asia Hotel, İstanbul, Türkiye. ISNFF Congress 2022 included participation of delegates from more than 30 countries with an approximately 350 participants. The special session was called "Bioavailability of Dietary Polyphenols" and included 7 presentations in which one of them is the PhenolAcTwin Project Presentation.

ISNFF

30 countries

350 participants

Special sessions



OPEN DAYS



2nd Open Day of PhenolAcTwin Project was held at TUBITAK Food Innovation Center in cooperation with Food Innovation Platform of Türkiye (TÜGİP). PhenolAcTwin Project was introduced to SMEs and entrepreneurs from the Food Industry. In the Open-day; project coordinator assistant Emel Önder Fırat presented PhenolAcTwin Project and mentioned the activities of PhenolAcTwin and its webpage and social media accounts. Director of TÜGİP Ass. Prof. Cesarettin Alaşalvar presented TÜGİP and TUBITAK MRC Life Sciences (Food Institute), its researcher profile, on-going and completed projects, products developed by Food Institute and opportunities for future collaborations. At this event, 38 food entrepreneurs visited TÜBİTAK MRC Life Sciences (Food Institute) and Food Innovation Center and ideas on innovative food products were exchanged. Future collaborations and co-creation topics were discussed.

PhenolAcTwin
presentation

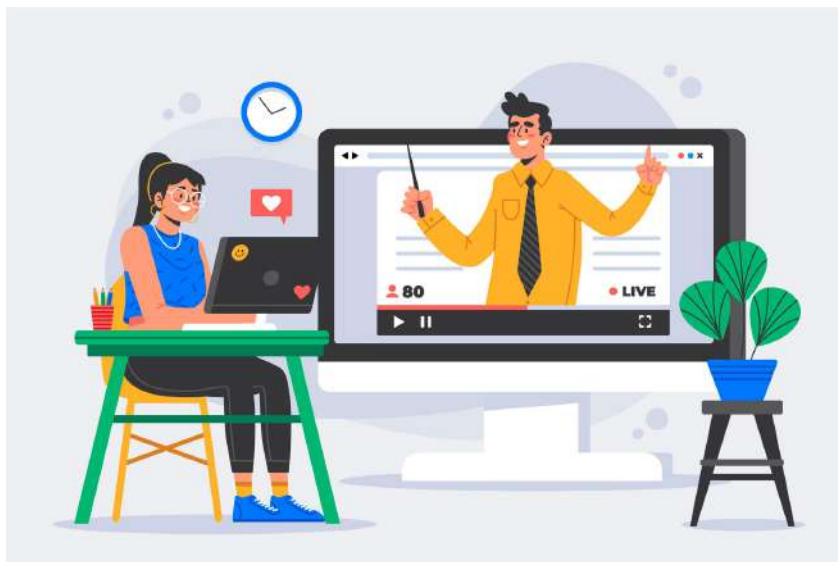
TÜGİP and TUBITAK
MRC presentation

38 food
entrepreneurs visited



UP-COMING EVENTS

2023 ACTIVITIES



► Workshop-1

Will be organized by INRAE on Nutrigenomics for a better understanding of health effects of phytochemicals and foods.

► Summer school 1

First summer school will be organized by QIB on the topic of "the impact of polyphenols and other dietary components on food digestion, host metabolism and cardiometabolic health including sessions focused on the use of next generation sequencing, metabolomics and bioinformatics".

► Summer school 4

Identification of dietary polyphenols and their bioavailability and bioefficacy: Final summerschool will be organized by TUBITAK on the topic of "Identification of polyphenols in foods and their bioavailability" in the third year of the project. Especially, medicinal and aromatic plants, Turkish traditional foods and effects of industrial processing and home cooking, on composition and bioavailability will be the main focus of this summer school.

WHAT'S INSIDE

Workshop-1

Summer School-1

Summer School-4



HOT TOPICS

ABSTRACT

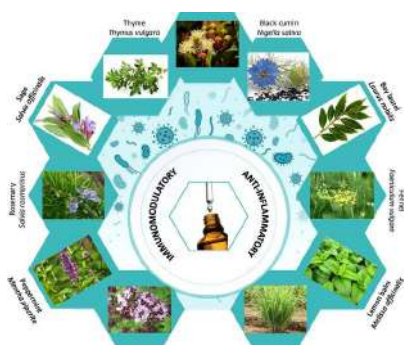
Medicinal herbs and their essential oils are used in human health promotion and disease prevention since ancient times. In the last two decades, many studies have been carried out to both identify bioactive compounds in medicinal herbs and derived essential oils and to examine their biological effects in experimental models; clinical trials, however, have been scant.

This review discusses in vitro, in vivo, and clinical evidence supporting the immunomodulatory role of eleven medicinal herbs (bay laurel, black cumin, clove, fennel, lemon balm, lemongrass, marjoram, peppermint, rosemary, sage, and thyme) and their essential oils and bioactive components. Safety and toxicity aspects for consumption as well as future perspectives are also covered.

JULY 2022



Relevant data from the existing literature have been compiled and summarized. These herbs and oils, which are increasingly consumed, can be considered as valuable dietary supplements due to their health-promoting bioactive constituents. Well-design clinical trials are warranted to better ascertain the immunomodulatory effects of these herbal products.



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Immunomodulatory effects of selected medicinal herbs and their essential oils: A comprehensive review

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