



EUROPEAN
R&D
DEPARTMENT
Τμήμα Ευρωπαϊκής
Έρευνας & Ανάπτυξης

European R&D department
A multidisciplinary research department,
on EU projects R&D activities



CAPACITIES

EXPERTISE

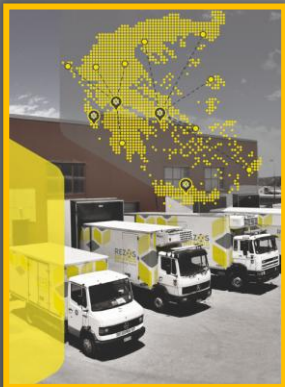
- **+30 years** of experience
- **Vertical business model “From Farm to Fork”**
- **Multidisciplinary European R&D Team**
- **Precision agriculture - Agri-tech**
- **Agri waste valorisation /Food from waste**
- **Functional/Healthy Food R&D**
- **Digital tech/ Blockchain / AI/VR/Cyber security**
- **Food safety / Food security**
- **Circular economy / Energy from waste**

STRATEGIC INVESTMENTS

- Development of innovative manufacturing approaches
- Smart, sustainable and inclusive growth through **innovative food tech**
- **Pioneering processing technologies** (e.g., extraction, encapsulation, dehydration)
- **2022-2026 Rezos Brands Investments**
 - Precision Agriculture sensors
 - 50kw biomass gasifier/Drum dryer
 - Spray dryer
 - High Performance Liquid Chromatography (HPLC)
 - Microwave Extraction System (ETHOS)
 - Ultrasound Extraction and Concentration system

INFRASTRUCTURE

- **Warehouse facilities and Logistics center** (Industrial Area of Patras, Greece)
- **Energy production plant/Gasifier** (thermal, electric, SynGas by Agriwaste – biomass)
- **Functional Food, Agrifood & Health Technologies Lab**
- **Osmotic dehydration plant:** Fruits, herbs & vegetables, Serbia (2026)
- **Urban Greenhouse Patras**
- **Hippocrates Farm:** sea buckthorn & other pilot cultivations farm (Meteora, Greece)



INTERESTS – APPLICATIONS

FOOD & HEALTH	AGRI FOOD TECH	DIGITAL/CYBER TECH	ENERGY	CIRCULAR ECONOMY
➤ Food systems ➤ Food safety/security ➤ Biotechnology ➤ Extraction & Encapsulation ➤ Stray/freeze drying technologies ➤ Sustainable food development methods. ➤ Fortified/enriched/healthy novel food products ➤ Personalize nutrition ➤ Supplements ➤ Skin-care cosmetics	➤ Innovative Agri Business models ➤ Innovative food tech ➤ Precision Agriculture/Smart farming ➤ Organic Cultivation of superfoods ➤ Innovative fruits & vegs dehydration - drying & preservation technologies. ➤ Sustainable packaging	➤ Cyber Security ➤ Defence (drones, supply chain tech etc) ➤ Artificial Intelligence applications ➤ IoT, sensors, smart farming ➤ Digital training platforms (AI tutors) ➤ Blockchain tech /smart contracts ➤ IoT, sensors, smart farming ➤ Smart manufacturing ➤ Augmented/virtual technologies	➤ Energy processes from agriwaste ➤ Bioenergy ➤ Gasifier : valorization of agriwaste for the production of thermal, electric energy , biomass and SynGas. ➤ Green energy	➤ Industrial Sustainability ➤ Valorization of waste ➤ Improvement of end products through circularity. ➤ Bioeconomy

MOST RECENT EU PROJECTS

De-Fris - Development of new feeding regimes for small ruminants valorizing agro-industrial by-products (Coordinator)	HORIZON-MSCA-2026-SE-01
CIRCUIT-FOOD - CIRcular Citrus Utilization through Integrated Technologies for safe high-value FOOD product development (Coordinator)	HORIZON-MSCA-2026-SE-01
Gastro-Fib - Gastrointestinal Structuring of Agro-Industrial Dietary Fibres: From Green Extraction to Predictive Engineering	HORIZON-MSCA-2026-SE-01
GuardAgents - Study of Novel Generation nanobodies for agri-food applications (Coordinator)	HORIZON-MSCA-2024-SE-01
TOMAS 2.0 - Vocational training to facilitate the integration process of migrants in the agri-food sector	ERASMUS + KA220-VET
EU-WASTE - Empowering citizens for sustainable waste management	ERASMUS + KA210-ADU
EFF-CoP - European Food Fraud Community of Practice: From Outset to Operation	HORIZON-CL6-2024-FARM2FORK-01
VERDEDRIVE - Harnessing by-products for the creation of eco-friendly and sustainable diesel fuel	HORIZON-MSCA-2023-SE-01
AI4VET4AI - AI-powered Next Generation of VET	ERASMUS + Partnership for Excellence - Centres of Vocational Excellence
TALLHEDA - Transforming Access To Excellence with successful alliances of Higher Education in Digital Agriculture	HORIZON-WIDERA-2023-ACCESS-03-01
RIA4FOOD - Multi-Actor Research and Innovation Approaches for Functional Food (Coordinator)	HORIZON-MSCA-2022-SE-01
Trust Food – Advanced Digital Skills on Blockchain for Trusted Food Supply Chains (Coordinator)	DIGITAL EUROPE - DIGITAL-2022-TRAINING-02
CAPS Alliance - Climate-Smart Agripreneurship Partnership for Sustainability	ERASMUS + Capacity building in the field of (VET)
UPRAISE - Virtual Worlds Innovation Masters: Shaping Future Digital Skills Europe	DIGITAL EUROPE - DIGITAL-2024-ADVANCED-DIGITAL-07
Beelieve - European Centres of Vocational Excellence in Apiculture	ERASMUS + Partnership for Excellence - Centres of Vocational Excellence
BOOSTing agribusiness acceleration and digital hub networking by an advanced training program on sustainable Precision Agriculture	ERASMUS + KA2_Partnerships for innovation: Alliances
Stay-on - Unlocking Youth Potential_A community based and driven Project (Coordinator)	EEA and Norway Grants
AccelWater - Accelerating Water Circularity in Food and Beverage Industrial Areas around Europe	H2020-CE-SPIRE-07-2020
PHAEDON - Transparency and traceability in the supply chain using distributed ledger technologies: Sea Buckthorn Case (Coordinator)	Research – Create – Innovate_2014-2020 NSRF
agroBRIDGES - Building bridges between consumers and producers by supporting short food supply chains through a holistic, multi actor Toolbox	H2020-RUR-05-2020
ENFiber - European Network for Valorizing Food Processing Waste into Sustainable Fibers	COST ACTIONS: Open Call Collection OC-2024-1
SMART4ALL - Selfsustained cross border customized cyberphysical system experiments for capacity building among european stakehorders.	H2020-DT-ICT-01-2019



Rezos Brands

European R&D Dpt Publications



1. Nicole Ollinger, Cathrina Neuhauser, Bettina Schwarzing, Melanie Wallner, Clemens Schwarzing, Bernhard Blank-Landeshammer, Roland Hager, Nadiia Sadova, Ivana Drotarova, Katrin Mathmann, **Eugenia Karamouzi**, **Panagiotis Panopoulos**, Gerald Rimbach, Kai Lüersen, Julian Weghuber and Clemens Rohrl: **Oils and extracts derived from sea buckthorn alter key mechanisms of postprandial glucose homeostasis – a comprehensive analysis utilizing in-vitro and in-vivo models. Under submission in Molecular Nutrition and Food Research.**
2. Zompra, A.A.; Chasapi, S.A.; Karagkouni, E.C.; **Karamouzi, E.; Panopoulos, P.**; Spyroulias, G.A.: **Metabolite and Bioactive Compounds Profiling of Meteora Sea Buckthorn Berries through High-Resolution NMR Analysis.** *Metabolites* 2021, 11, 822. <https://doi.org/10.3390/metabo11120822>
3. Thomas Bournaris, Andreas Mattas, Anastasios Michailidis, Dionisio Andujar, Manuela Correia, Valentina De Pascale, Manuela Díaz, Belén Diezma, Alessandro Guadagni, **Eugenia Karamouzi**, Jeremy Karouta, Anne Krus, Stefania Lombardo, José Rafael Marques da Silva, **Panagiotis Panopoulos**, Manuel Pérez-Ruiz, Angela Ribeiro, Dimitrios Tsois, Constantino Valero, Marco Vieri: SPARKLE e-Learning Platform for Sustainable Precision Agriculture. HAICTA 2020: 334-339.
4. Asimakopoulou A, **Panopoulos P**, Chasapis CT, Coletta C, Zhou Z, Cirino G, Giannis A, Szabo C, Spyroulias GA, Papapetropoulos A: **(2013) Selectivity of commonly used pharmacological inhibitors for cystathionine β synthase (CBS) and cystathionine γ lyase (CSE).** *Br J Pharmacol.* 2013 Jun;169(4):922-32.doi: 10.1111/bph.12171.
5. Módis K, **Panopoulos P**, Coletta C, Papapetropoulos A, Szabo C.: **(2013) Hydrogen sulfide-mediated stimulation of mitochondrial electron transport involves inhibition of the mitochondrial phosphodiesterase 2A, elevation of cAMP and activation of protein kinase A.** *Biochem Pharmacol.* 2013 Nov 1;86(9):1311-9. doi: 10.1016/j.bcp.2013.08.064. Epub 2013 Sep 4.
6. Aglaia Liopa-Tsakalidi, **Dimitrios Tsois**, Pantelis Barouchas, Athanasia-Eleftheria Chantzi, Athanasios Koulopoulos and Nikolaos Malamos: **Application of mobile technologies through an Integrated Management System for agricultural production, 6th International Conference on Information and Communication Technologies in Agriculture, Food and Environment (HAICTA 2013).**
7. Athanasia Eleftheria Chantzi, Charikleia Plessa, Iason Chatziparadeisis Gkanas, **Dimitrios Tsois** and Athanasios Tsakalidis: **An Innovative Augmented Reality Educational Platform Using Gamification to Enhance Lifelong Learning and Education in Food Science, Intelligence, Information, Systems and Applications (IISA2013), Pireus 2013, Greece.**
8. Aristeidis Karras, Christos N. Karras, Anastasios Giannaros, **Dimitrios Tsois**, Spyros Sioutas: **Mobility-Aware Workload Distribution and Task Allocation for Mobile Edge Computing Networks.** *ACR 2023:* 395-407
9. **Constantinou C**, Mpatsoylis D, Natsos A, Petropoulou PI, Zvintzou E, Traish AM, Voshol PJ, Karagiannides I, Kypreos KE. (2014) **The low density lipoprotein receptor modulates the effects of hypogonadism on diet-induced obesity and related metabolic perturbations.** *J Lipid Res.* 55(7):1434-1447. doi: 10.1194/jlr.M050047.
10. Linardaki ZI, Vasilopoulou CG, **Constantinou C**, Iatrou G, Lamari FN, Margarity M. (2011) **Differential antioxidant effects of consuming tea from Sideritis clandestina subsp. peloponnesiaca on cerebral regions of adult mice.** *J Med Food.* 14(9): 1060-4. doi: 10.1089/jmf.2010.0187.
11. **Constantinou C**, Chrysanthopoulos PK, Margarity M, Klapa MI. (2011) **GC-MS metabolomic analysis reveals significant alterations in cerebellar metabolic physiology in a mouse model of adult onset hypothyroidism.** *J Proteome Res.* 10(2): 869-79. doi: 10.1021/pr100699m.

Rezos Brands

European R&D Dpt Staff - Researchers



Eugenia Karamouzi, MSc
Director

- European Law - HRM
- Law & Politics of the European Union
- Food Technology Innovation Manager

Panagiotis Panopoulos, MSc, PhD
Deputy Director
Medical Biochemist

Katerina Konstantinou, MSc, PhD
Biologist - Physiologist

Dimitrios Tsolis, MSc, PhD
Electrical & Computer Engineer

Natasa Vlachou, MSc
Physicist & Applied Mathematics

Katerina Zombra, MSc, PhD
Chemist in Biomedical Sciences

Thanasis Leontaritis, MSc,
Financial Advisor
Sustainability Planner

Marianna Lagonikou, MSc
Agronomist –Animal Scientist, Food Technologist

Paraskevi Liakopoulou, MSc
Chemical Engineer

Ilias Monastiriotis BA (c)
Computer Engineer (Intern)



All Natural Foods d.o.o. Serbia

Osmotic & dehydration plant for fruits, vegetables & herbs

Our phased approach to production, from laboratory RGD to full-scale industrial output, demonstrates our readiness to innovate, scale, and meet market demand for our osmotic & dehydrated products.

- **Fully circular operation** (cellular water recovery by fruits and vegs dehydration process).
- **Long product self life** (preservation of products using hibernation chambers)



Laboratory-Scale Unit: Used for initial research, material testing, and the development of customized solutions for various fruits and client needs. Batch mode of operation.



Pilot-Scale Unit: A semi-commercial unit with a capacity of up to 1 ton of final product per day, used for testing commercial batches and fulfilling initial orders.



Industrial-Scale Plant: Designed for high-volume production, with a projected capacity of 3-4 tons of finished product per day (up to 10,000 kg fruit input per day). Continuous mode of operation.



Industrial-Scale Dehydration unit: Designed for high-volume production of dry fruits & vegs, with a projected capacity of 1-2 tons of finished product per day. Recovery of cellular water. Continuous mode of operation.

Rezos Brands

Energy production plant/Gasifier (Thermal, Electrical, SynGas by Agriwaste – biomass)

Production of electrical and thermal energy through gasification

- Feedstock: Dried BSGs (12% moisture, particle size ≈ 1 cm).
- Gasifying agent: Air.
- The HBF-150W biomass gasifier (downdraft type fixed bed) operates with a feedstock rate of 75 kg/h.
- The HTG-50GF gas generator set has a power output of 50 kW/h.
- The system mainly produces thermal energy (83%), with a thermal-to-electrical energy ratio of $\sim 5:1$.



Rotary drier



Generator



Gasification system

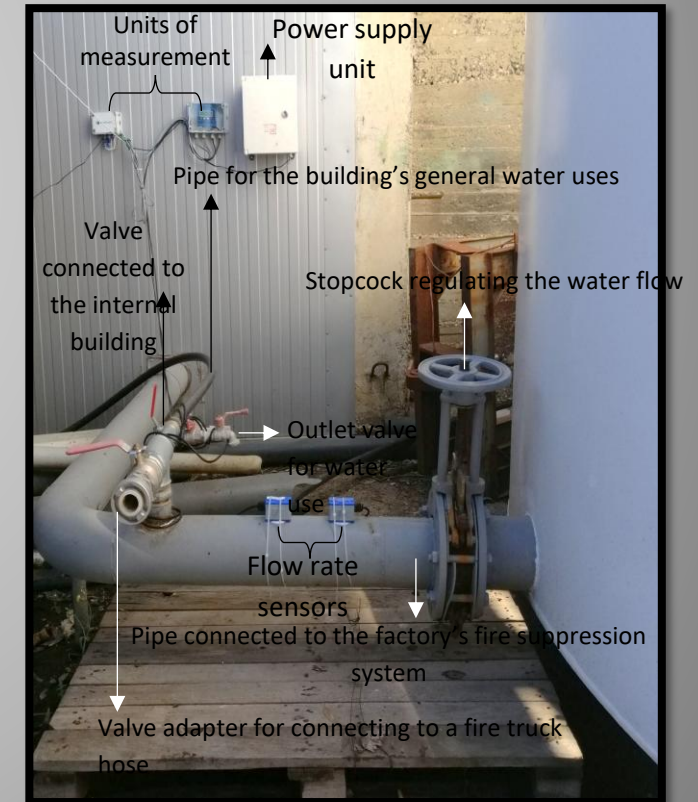
Rezos Brands

Rainwater Harvesting and Use

- Rainwater harvesting system
- ✓ The rainwater harvesting technology allows the effective collection of rainwater from the roof surface of REZOS building (4000 m³) into a dedicated metal water tank.



- ✓ The storage tank is also connected to the factory's fire



Connection to the factory's fire suppression system

Rezos Brands

Urban Greenhouse Patras



Rezos Brands

Industrial Warehouse – Logistics
Office Buildings 22,492.07 m2





REZOS BRANDS

Delivering Value

