“Programa de Cooperación INTERREG V-A España Portugal (POCTEP) 2014-2020”

“Primera convocatoria”

**“RED COOPERATIVA DE INVESTIGACIÓN EN EL ÁMBITO DE POLIFENOLES Y SUS APLICACIONES INDUSTRIALES”**

**IBERPHENOL**

**(0377_IBERPHENOL_6_E)**


Investigador responsable: Eduardo Rosa
Contacto: UTAD. Email: erosa@utad.pt

**- Organismo:** Universidade de Trás-os-Montes e Alto Douro

**- Principales líneas de investigación:**

Desarrollo de tecnologias inovadoras para processamento, análisis de alimentos y valoración de subprodutos de la produción agrícola y de las indústrias agro-alimentárias en la salud, cosmética e industria de alimentos. Evaluación de los benefícios para la salud de alimentos funcionales. Efecto de la tecnologia de produción en la calidad de los alimentos. Evaluación de biocompuestos en microorganismos patogénicos. Explotación de la composición en biocompuestos en espécies vegetales expontâneas en la salud, cosmética e industria alimentaria.

**- Miembros del Grupo y categoría profesional:**

Prof Eduardo Rosa, Prof Pedro Melo, Prof. Ana Barros, Prof Berta Gonçalves, Prof Ana paula Silva, Prof. Doutor Fernando M. Nunes, Prof. Doutor Virgilio Falco, Prof. Doutor Maria Manuel Oliveira, Prof. Doutor Fernanda Cosme, Prof. Doutor Alice Vilela, Prof Amélia Silva, Prof. Maria José Saavedra, Prof Paula Alexandra Martins de Oliveira; Associate professor, Prof. António Inês, Prof. António M. Jordão, Prof. Francisco Manuel Pereira Peixoto, Doutor Irene Gouvinhas, Doutor David Oppolzer, Doutor Singh Rupesh, Doutor José Miguel Ribeiro, Doutora Teresa Santos, Mestre Juliana Milheiro, Mestre Sandrine Ferreira.

**- Proyectos de carácter competitivo vigentes:**

2016–2019 Cherry cracking & mitigation strategies: towards their understanding using a functional metabolomic approach. PTDC/AGR-PRD/7028/2014, Compete (Lisboa, Portugal). Financiamento: 183, 202.00 EUR.

2016-2019 INNOVINE & WINE - Vineyard and Wine Innovation Platform. ON2| NORTE-01-0145-FEDER-000038 | UTAD | Financiamento: 5 293 984 EUR.

2016-2019 Integrative Research in Environment, Agro-Chain and Technology/Fostering Viticulture Sustainability for Douro Valley: Multidisciplinary Efforts from Field to Wine, INTERACT/VitalityWINE (NORTE-45-2015-02).

2017-2018 Projecto Europeu “Saber Sur” 0254_sabor_sur_6_E - Interreg. IR Ayuntamiento de la Palma del Condado, Parceiros: Ayuntamiento de Lepe, Ayamonte, ADESVA, Consorcio Fernando de los Ríos, UE, UAlg, UTAD e NERA. Cofinanciado pelo Programa Cooperação Transfronteiriça Espanha - Portugal (POCTEP).

2014–2018 GoldCherry “Incremento da produção de cereja de qualidade” - PA 53626, financiado pelo Fundo Europeu Agrícola de Desenvolvimento Rural. Financiamento: 260,175.82 EUR.

2015-2018 RUNNING away from prostate cancer: WALKING through the molecular basis of physical activity; PTDC/DTP-DES/6077/2014; IP: Paula Alexandra Martins de Oliveira; University of Tras-os-Montes and Alto Douro; University of Aveiro, University of Porto, 36 months; Portuguese Foundation for Science and Technology.

This project will establish the impact of lifelong exercise training (ET) on a Prostate Cancer (PCa) animal model (*Rattus norvergicus*) onset and progression and fulfil many existing gaps in the study of ET on PCa prevention. It will provide in-depth knowledge on the molecular processes modulated by ET.

2015- 2018 -Application of splicing approaches to exploit alternative therapies for Lysosomal Storage Diseases: in vitro and in vivo studies; PTDC/BBB-BMD/6301/2014; IP: Sandra Catarina Alves; University of Tras-os-Montes and Alto Douro; Instituto Nacional de Saúde Dr. Ricardo Jorge; 36 months; Portuguese Foundation for Science and Technology.

In this project we intend to study the mutations in HGSNAT and CSTB genes through the validation of the therapeutic approaches already developed and tested in patient cells using exogenous constructs injected in mice (*Mus musculus*).

**- Publicaciones más representativas:**


1. **Barros, A., Gouvinhas, I., Machado, N., Pinto, J., Cunha, M., Rosa, E. and Dominguez-Perles, R. (2016). New grape stems-based liqueur: Physicochemical and phytochemical evaluation.** Food Chemistry 190, 896-903

2. **Domínguez-Perles, R., Machado, N., Abraão, A.S., Carnide, V., Ferreira, L.,** Rodrigues, M., **E. Rosa, E., Barros, A.I.R.N.A. 2016. Chemometric analysis on free amino acids and proximate compositional data for selecting cowpea (Vigna unguiculata L.) diversity.** Journal of Food Composition and Analysis 53 (august), 69-76

3. Goncalves, A**., Goufo, P., Barros, A., Dominguez-Perles, R., Trindade, H., Rosa, E.A.S., Ferreira, L. and Rodrigues, M. 2016. Cowpea (Vigna unguiculata L. Walp), a renewed multipurpose crop for a more sustainable agri-food system: nutritional advantages and constraints.** Journal of the Science of Food and Agriculture, 96 (9), 2941-2951
4. Martins, F., **Oliveira, I., Barros, A., Amaral, C., Afonso, S., Ferreira, H., Gonçalves, B. 2016. Leaf age, seasonal and annual variations in Salvia officinalis L. var. purpurascens biochemical characteristics.** Journal of Applied Botany and Food Quality, 89, 299-306
5. **Dominguez-Perles, R., G**uedes, A., Queiroz, M**., Silva, A.M., Barros, A**. 2016. **Oxidative stress prevention and anti-apoptosis activity of grape (Vitis vinifera L.) stems in human keratinocytes.** Food Research International, 87, set, 92-102
6. Aires, A., Carvalho, R., Matos, M., Cranide, V., Silva. A.P., & Gonçalves, B. (2017). Variation of chemical constituents, antioxidant activity and endogenous plant hormones throughout different ripening stages of highbush blueberry (Vaccinium corymbosum L.) cultivars produced in Centre of Portugal. J Food Biochem, 1-12.
7. Aires, A., Dias, C., Carvalho, R., & Saavedra, M. J. (2017). Analysis of sakuratein and glycosylated flavonoids extracted from sweet-cherry stems, as antibacterial agents against pathogenic Escherichia coli isolates. Acta Biochim. Pol., 265-271.
8. Aires, A., Carvalho, R., Saavedra, M.J. (2017). Reuse potential of vegetable wastes (broccoli, green bean and tomato) for the recovery of antioxidant phenolic acids and flavonoids. Int J Food Sci Tech, 98-017.

9. Filipe-Ribeiro, L., Cosme, F., Nunes, F. M. (2018). Reducing the negative sensory impact of volatile phenols in red wine with different chitosans: Effect of structure on efficiency. Food Chemistry 242, 591–600.

11. Filipe-Ribeiro, L., Milheiro, J., Matos, C. C., Cosme, F., Nunes, F. M. (2017). Reduction of 4-ethylphenol and 4-ethylguaiacol in red wine by activated carbons with different physicochemical characteristics: Impact on wine quality. Food Chemistry, 229:242-251.

12.Falco V,, Castro, I., Oliveira, A,A,. Ferreira, V., Martin, J.P., Ortiz, J.M., Oliveira, P., Moura, J.P., Magalhães, N., Pinto-Carnide, O. (2017). Characterisation of related red-berried and white-berried grapevine cultivars. Acta Horticulturae, 1157, 119-124. DOI: 10.17660/ActaHortic.2017.1157.19.

13.Ferreira V., Fernandes, F. Carrasco, D., Hernandez, M,G., Pinto-Carnide, O., Arroyo-García, R., Andrade, P.B., Valentão, P., Falco, V., Castro, I. (2017). Spontaneous variation regarding grape berry skin color: A comprehensive study of berry development by means of biochemical and molecular markers. Food Research International 97:149–161. DOI: 10.1016/j.foodres.2017.03.050.

14.Ferreira V., Fernandes, F., Pinto-Carnide. O., Valentão, P., Falco, V., Martín, J.P., Ortiz, J.M., Arroyo-García, R., Andrade, P.B., Castro, I. (2016). Identification of *Vitis vinifera* L. grape berry skin color mutants and polyphenolic profile. Food Chemistry 194: 117-127

15. Andrea-Silva, J., Cosme, F., Filipe Ribeiro, L., Moreira, A. S. P., Malheiro, A. C., Coimbra, M. A., Domingues, M. R. M., Nunes, F. M. (2014). Origin of the Pinking Phenomenon of White Wines. Journal of Agricultural and Food Chemistry, 62, 5651−5659.

16.Ribeiro, T., Fernandes, C., Nunes, F. M., Filipe-Ribeiro, L., Cosme, F. (2014). Influence of the structural features of commercial mannoproteins in white wine protein stabilization and chemical and sensory properties. Food Chemistry, 159, 47-54.

17. Monteiro, B., Vilela, A., Correia, E. (2014). Sensory profile of pink port wines: Development of a flavour lexicon. Flavour and Fragrance Journal, 29, 50-58.

18. Cosme, F., Ricardo-da-Silva, J.M., Laureano, O. (2009). Tannic profiles of *Vitis vinifera* L. cv. red grapes growing in Lisbon and from their monovarietal wines. Food Chemistry, 112:197-204.

19. Gil da Costa RM, Aragão S, Moutinho M, Alvarado A, Carmo D, Casaca F, Silva S, Ribeiro J, Sousa H, Ferreira R, Nogueira-Ferreira R, Pires MJ, Colaço B, Medeiros R, Venâncio C, Oliveira MM, Bastos MM, Lopes C, Oliveira PA. HPV16 induces a wasting syndrome in transgenic mice: Amelioration by dietary polyphenols via NF-κB inhibition. Life Sci. 2017; 169:11-19. doi: 10.1016/j.lfs.2016.10.031.

20. Santos C, Ferreirinha P, Sousa H, Ribeiro J, Bastos MM, Neto T, Oliveira PA, Medeiros R,

Vilanova M, Gil da Costa RM. Ptaquiloside from bracken (Pteridium spp.) inhibits tumour-infiltrating CD8+ T cells in HPV-16 transgenic mice. Food Chem Toxicol. 2016; 97:277-285. doi: 10.1016/j.fct.2016.09.019

**- Patentes:**

1.Portuguese patent aplication, reference 20171000083093.: Cork poder as a fining agent for beverage, preparation method and its application. Data de Pedido: Dezembro de 2017.

2.Pedido Nacional de Patente N.º 107389, Vinho obtido a partir de uvas brancas, processo de vinificação, e produtos derivados. Data de Pedido: 06-01-2017.

3.Pedido Nacional de Patente N.º 109524, Processo de destoxificação de farinha de trigo e glúten através da formação de estruturas supramoleculares com a quitosana e respectiva farinha de trigo e glúten destoxificados para consumo por doentes celíacos. Data de Pedido: 11-07-2016.

4.Patente Nacional N.º 105662, Método para a Produção de Frutos e Vegetais Confitados e Frutos e Vegetais Secos Sem Sacarose com Utilização de Substituintes da Sacarose com ou sem Propriedade Funcionais. Data de Concessão: 25-03-2015.

5.Pedido de Patent Cooperation Treaty N. PCT/IB2015/050093, Salmon-pink wine obtained from white grapes, winemaking process, and derived products. Data de Pedido: 06-01-2015.

6.Pedido Provisório de Patente N.º108975, Método para a produção de massas, pão e outros géneros alimentícios enriquecidos em L-teanina e os respetivos produtos. Data de Pedido: 24-11-2015.

7.Patente Nacional N.º 104691, Processo de obtenção de fibra dietética de cogumelos e respectiva fibra. Datade Concessão: 22-04-2013.

8.Pedido Provisório de Patente N.º 106648, Novel, direct, reagent-free method for detection of beeswax adulteration by single reflection attenuated total reflectance mid-infrared spectroscopy. Data de Pedido: 19-11-2012.

9.Pedido de Patent Cooperation Treaty N.º PCT/IB2009/055552. Data de pedido: 7-12-2009.

**- Inventario de instalaciones científicas disponibles**

Laboratório de fitoquímicos, de química analítica, microbiologia, seguridad alimentaria y bioterium
Sistema gradiente quaternário de HPLC-DAD-FLD

High Performance Liquid Chromatography coupled to Diode Array Detector (Thermo)
Refrigerated centrifuge equiped with rotors for microtubes and 50 mL tubes (Sigma)
HPLC
GC-MC
GC-FID
Cromatógrafo de troca iónica
FTIR instrument comprissing both ATR and DRIFT modules (Thermo)
Citómetro
Câmaras hyperspectrals for analysis of food components
Freeze dryer
Reómetro
Alvéografo
Analisador de volume 3D - Bread volumeter
Analisador de textura - Rapid Visco Analyser
Texturometro
Laboratório de Análise Sensorial
Câmaras climáticas
PCR en tiempo real

Animal facilities available to perform research in animal models.

- **Listado de servicios disponibles**

- Characterization and classification of products
- New formulations and process improvement
- Sensory properties of food
- Tasting panels & studies of consumers' preferences
- Geographical indications and traditional specialities
- Food Preservation
- Food security
- Separation processes
- Extraction of products and by-products of interest
- Wastewater treatment
- Physico-chemical and microscopic analysis of food
- Nutritional and dietary studies
- Technology applied to industrials enzymatic processes
- Genomics
- Molecular analysis of food by PCR
- Bioactive compounds
- Antioxidants

Oenology