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XII Jornadas de  
Genética e  
Biotecnologia  
II Jornadas Ibéricas de  
Genética y  
Biotecnología

Universidade de Trás-os-Montes e Alto Douro

# Book of Abstracts

 **ADNGB**  
Núcleo de Alunos de Genética  
e Biotecnologia da AAUTAD



**Título: Book of Abstracts of the XII Jornadas de Genética e Biotecnologia / II Jornadas Ibéricas de Genética y Biotecnología**

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## **XII Genetics and Biotechnology Conference/ II Genetics and Biotechnology Iberian Conference**

The Genetics and Biotechnology Conference (JGB) of the University of Tras-os-Montes and Alto Douro (UTAD) is an annual scientific event organized jointly by the Nucleus of Students of Genetics and Biotechnology (ADNGB) of UTAD and the Direction of the Course of Genetics and Biotechnology in collaboration with the teaching staff of the Department of Genetics and Biotechnology (DGB). As a result of the scientific-pedagogical partnership established between professors of DGB (UTAD) and of Faculty of Biological and Environmental Sciences of the University of León (UL), Spain, it was considered important to repeat the shared organization of this event between professors and students of the UTAD and UL designating it as XII Genetics and Biotechnology Conference / II Genetics and Biotechnology Iberian Conference (XII JGB / II JIGB). The main objective of the XII JGB /II JIGB is to update knowledge in the area of Genetics and Biotechnology. To this end, the focus of this event is the conferences given by renowned national and international scientists and the thematic workshops that will constitute more practical sessions. The XII JGB /II JIGB will also focus on interaction, exchange of experiences and scientific debates between Portuguese and Spanish students and professors. The best oral and posters presentations will be awarded. The target audience is Portuguese and Spanish students, researchers and university professors from the scientific areas of Biological Sciences and Biotechnology as well as High School teachers from the Biology area. A wide variety of topics will be discussed, in the different areas of Genetics and Biotechnology, such as Plant, Animal, Human, Microbial, Evolutionary, Cancer, Forensic, Ethics, Entrepreneurship, among others.



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# Program

## Thursday 20<sup>th</sup> February- UTAD

14.30-17.30 h: Workshops

**Eurico Lima, Lucinda Vaz Reis** - *How to extract, isolate and identify plant-based secondary metabolites with biotechnological and pharmacological relevance?*

**Manuela Matos, Marlene Santo, Ana Sofia Soares, Ana Cláudia Coelho** - *Molecular Genetics – Genotype vs Phenotype*

**Irene Oliveira, Eduardo Pires** - *Introduction to Phyton and R programming for applications in Bioinformatics*

**Jorge Azevedo** - *The history of silkworm production and new technologies*

**Carlos Viegas, João Requicha** - *Clinical genomics of the periodontal disease*

## Friday 21<sup>st</sup> February- Aula Magna UTAD

8.30-9.30 h: Registration

9.30-10.00 h: Opening Session

10.00-11.00 h: Conference

**Nelson Saibo, Professor**  
ITQB, Lisbon

*New insights into different regulatory networks controlling both plant responses to environmental cues and C4 photosynthesis*

11.00-11.15 h: Coffee break

11.15-12.00 h: Conference

**David Caparrós Ruiz, Professor**  
Universitat Autònoma de Barcelona, Spain

*The role of O-methyltransferases in lignin biosynthesis in maize*

12.00-13.00 h: Oral Communications

**Balboa Álvaro J.** - *Changes in gene expression in lentil subjected to drought stress*

**Santos M.** - *Foliar application of magnesium and potassium as mitigation strategy of sweet cherry cracking: effects on fruit quality and gene expression*

**Santos R.** - *How close are Portuguese and African cowpea accessions? An evaluation by SSR markers*

**Machado M. T.** - *Multivariate data analysis of morphological characterization data in Portuguese maize landrace accessions*

**Vázquez A.** - *Recycling of citric wastes to obtain products with commercial value*

**14.30-15.30 h:** Conference

**Luísa Vasconcelos, PhD**  
Instituto Gulbenkian de Ciência, Lisbon

***The study of innate behavior using the fruit fly***

**15.30-16.15 h:** Conference

**Carmen Marin, Professor**  
Universidad de León, Spain

***A newly described function of the TP73 tumour suppressor gene as an architect of epithelial tissue***

**16.15-16.30 h:** Coffee break

**16.30-17.00 h:** Poster Session

**17.00-18.00 h:** Oral Communications

**Canedo-Ribeiro C.** - *Preimplantation genetic testing for aneuploidy (PGT-A) as a useful tool in cattle breeding programmes*

**Barros S.** - *Simvastatin disrupts zebrafish (*Danio rerio*) lipid and energy metabolism after long-term exposure*

**Bezerra M.** - *Dalbavancin as a therapeutic option to treat human osteomyelitis caused by methicillin-resistant *Staphylococcus aureus* (MRSA) infection*

**Soares A.S.** - *Indoors Fungal biodiversity - *Penicillium* and *Alternaria**

**Meireles D.** - **Listeria monocytogenes* wall teichoic acid glycosylation promotes surface anchoring of virulence factors, resistance to antimicrobial peptides and susceptibility to antibiotics*

**18.00-18.30 h:** Round Table with Former Students  
(exclusive event for former and current students of 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> cycles in the field of Genetics and Biotechnology)

**20.30 h:** Formal Dinner

**Saturday 22<sup>nd</sup> February- Aula Magna UTAD**

**9.30-10.30 h:** Conference

**Patrícia Monteiro, Professor**  
Universidade do Minho

***Genetics models of Autism Spectrum Disorders (ASD): the Shank3 gene***

**10.30-11.15 h:** Conference

**Olga Amaral, PhD**  
INSA, Porto

***Novel tools in cell and molecular biology: induced pluripotent stem cells in the field of lysosomal storage disorders***

**11.15-11.30 h:** Coffee break

**11.30-12.00 h:** Conference

**Joaquim Sá, Dr.**  
CGC Genetics / Centro de Genética Clínica, Unilabs, Porto

***The usefulness of medical genetics in real clinical practice***

**12.00-13.00 h:** Oral Communications

**Lino A.** - *qPCR assay for Colletotrichum acutatum detection and quantification*

**Silva-Reis R.** - *Morphometric analysis of rat parameters during an animal model of colorectal cancer*

**Ribeiro I.** - *Identification of transcription factors associated with a cancer stem cell phenotype in colon cancer cells*

**Lucas D.** - *FA-SAT ncRNA depletion induces apoptosis – is it through p53 mediation?*

**Lopes M.** - *SatDNA involvement in rob(14;21) formation: Assessing the robustness of technique interdependency*

**14.30-15.30 h:** Conference

**Joana Azeredo, Professor**  
Universidade do Minho

***The biotechnological potential of bacteriophages to control infectious diseases***

**15.30-16.15 h:** Conference

**Agostinho Antunes, Professor**  
Universidade do Porto

***Understanding Adaptation with Genomics and Bioinformatics:  
Biotechnological Relevance***

**16.15-16.30 h:** Coffee break

**16.30-17.00 h:** Musical moment

**17.00-17.30 h:** Award Ceremony and Closing Session

## Detection of *Francisella* spp. in wild animal lymph nodes and lungs by PCR and histopathological techniques

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**Keywords:** *Francisella* spp.; wild animals; PCR; histopathology

Among the emerging infectious diseases, of zoonotic origin, tularemia, or rabbit fever, requires special attention. The disease is caused by various strains of *Francisella tularensis*, a bacterium used as a biological weapon since antiquity, and belonging to the group of high danger in terms of infectiousness, along with agents such as *Bacillus anthracis* and *Yersinia pestis*. The most frequent manifestation of this disease involves symptoms that include fever, myalgia, dyspnoea and cough, among others. In addition to the unspecified clinical picture, its largely unknown natural occurrence and the high number of known reservoirs and vectors, are factors that reinforce the need for epidemiological studies in these groups of animals. In this study, a screening of *Francisella* spp. was performed on 130 tissues of 79 wild animals from Beira Interior Sul de Portugal, using the polymerase chain reaction (PCR) and histopathology techniques. The results pointed to potential cases of infection by this bacterium in 20 of the animals analysed (25.3%) and in 18 of the studied tissues (13.8%). In both screenings, the organs most affected were the mesenteric lymph nodes and lungs. In conclusion, this study demonstrated the presence of the potential agent of tularemia in economically important species, which may pose a risk to public health in terms of contaminated products. Finally, the locations of occurrence provide a higher risk of incubation of the agent for future zoonotic outbreaks.