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IUBO



News

XXVII Semana Científica "Antonio González"

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IUBO-AG supports the launch of a Canary Islands–Africa academic hub for cooperation and shared growth



ULL's Vicerectorate of Internationalization and Cooperation, led by Inmaculada González, met with key actors involved in African projects to join the Cooperation Plan Canarias-West Africa, alongside the Universidad de Las Palmas de Gran Canaria. A draft plan was presented to create a Canarias–Africa academic hub, which was opened to input from all participants. The IUBO-AG is actively mediating and contributing ideas to support this new initiative.

According to the Vice-Chancellor, the plan seeks to coordinate efforts and share experiences, crucially, it must be endorsed by African universities. Both Canary Islands public universities are pursuing a long-term strategy, applying for Interreg-MAC and K-171 funding, and promoting horizontal cooperation through direct European support to African universities.

<https://www.ull.es/portal/noticias/2025/internacionalizacion-avanza-en-el-plan-de-cooperacion-canarias-africa-occidental/>

Collaborator of BioLab wins the AMQO Young Chair Prize

Former IUBO's BioLab postdoc researcher Dr. Ailed Verónica Arenas González, presently at the Benemérita Universidad Autónoma de Puebla (Mexico), has been honored with the AMQO Young Chair Prize at the 20th Meeting of the Mexican Academy of Organic Chemistry. The award recognizes her outstanding work entitled "*Compuestos 1,2-diamina que contienen fracciones de piperidina: Síntesis y evaluación biológica como agentes antiproliferativos*". This distinction highlights the excellence and dedication of young Mexican researchers in organic chemistry, reinforcing collaboration between universities and research laboratories across Mexico.



https://x.com/AMQO_mexico/status/1968931580451193158

Welcome Lecture opens doors to new visitors at the institute



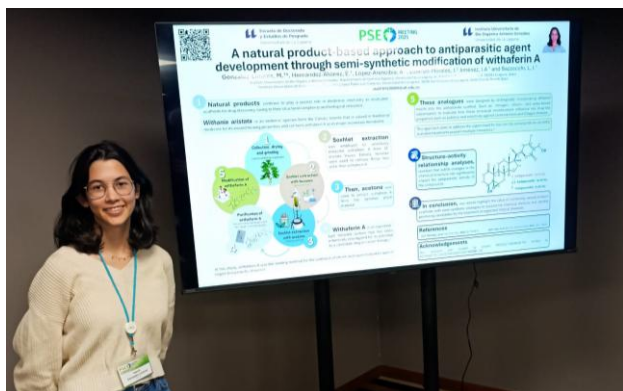
The Institute hosted a Welcome Lecture on Friday, October 3. The lecture featured Dimitri Papavasiliou, an exchange PhD student from Rutgers University who is currently conducting his research with the AMBILAB group. He presented his work entitled "*Ethnoarchaeological Fieldwork with the Ogiek*". Dimitri shared his experiences living with the Ogiek, one of the few remaining hunter-gatherer communities in East Africa. This allowed him to gain a deeper understanding and interpretation of his ethnoarchaeological studies.

Quimioplan highlights advances in natural products for health, agriculture, and disease control



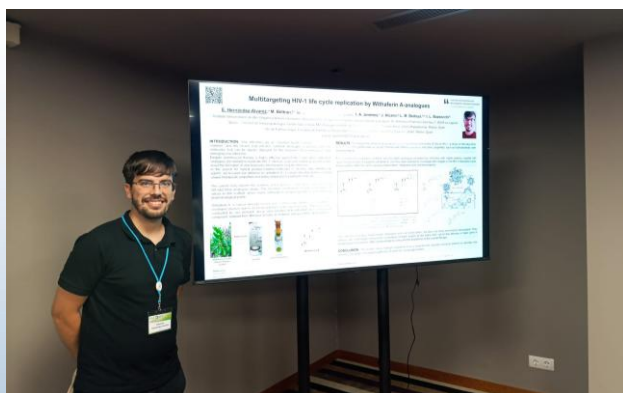
The PSE Meeting 2025 took place from 22–24 October 2025 on Madeira island (Portugal) under the theme “*Phytochemicals as Drugs, Foods and Biocommunicators.*” This international event will gathered scientists, researchers, and students to explore the latest advances in natural products, from their biosynthesis and biological roles to their applications in medicine, nutrition, and communication among organisms.

Prof. Isabel López Bazzocchi was invited as a Plenary Lecturer and presented her research on withaferin A from *Withania aristata*, a medicinal plant endemic to the Canary Islands. Her team developed semi-synthetic analogues with enhanced anticancer, antiparasitic, and anti-HIV activities, demonstrating how combining natural scaffolds with synthetic modifications can expand the chemical and biological potential of lead compounds.



The rest of the Quimioplan group presented their work via poster communications, showcasing studies on natural products with diverse applications in health and sustainability. Their work included cyanobacterial extracts from Canary Island microalgae that showed promising antifeedant activity, suggesting potential as eco-friendly pest control agents for sustainable agriculture.

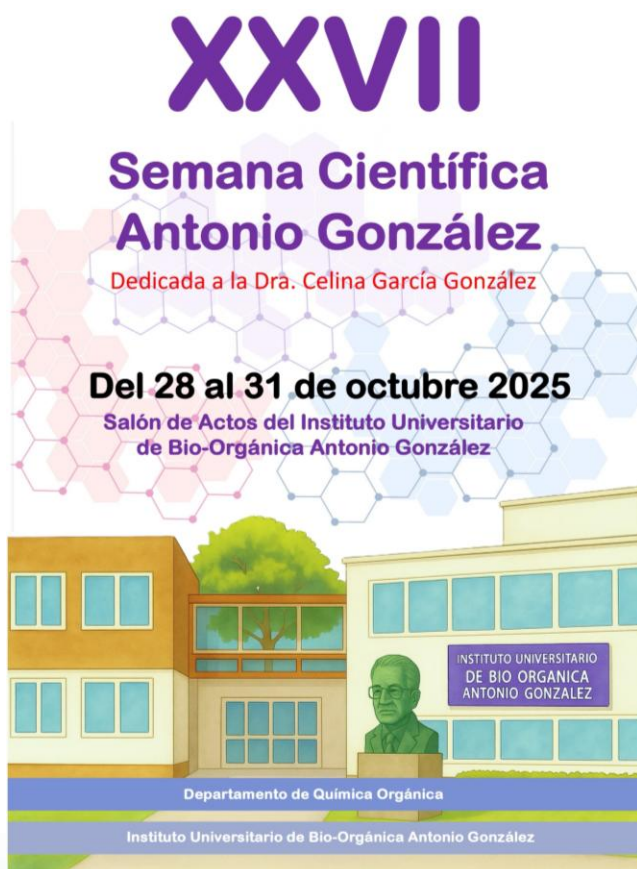
They also presented withaferin A analogues with multi-target antiretroviral and antiparasitic activities against HIV-1, *Leishmania*, and *Trypanosoma cruzi*, highlighting their relevance in the treatment of infectious and neglected tropical diseases. In addition, *Gunnera tinctoria* extracts from the Azores displayed strong antidiabetic activity, outperforming standard controls and revealing the potential of this invasive species as a source of valuable bioactive compounds.



Overall, the group from IUBO-AG emphasized that combining natural scaffolds with semi-synthetic strategies enhances both chemical and biological diversity, offering innovative and sustainable solutions for infectious diseases, metabolic disorders, and agriculture. They received several awards for their poster communications.

XXVII Semana Científica Antonio González

The XXVII Semana Científica Antonio González took place from 28–31 October 2025 in our lecture hall. The event was organized by Department of Organic Chemistry in close collaboration with our Institute. This 27th edition was specially dedicated to Associate Professor Celina García González. The program included a special *In Memoriam* to recognize her great professional worth and extraordinary personal values.



XXVII
Semana Científica
Antonio González
 Dedicada a la Dra. Celina García González
 Del 28 al 31 de octubre 2025
 Salón de Actos del Instituto Universitario
 de Bio-Organica Antonio González

Departamento de Química Orgánica
 Instituto Universitario de Bio-Organica Antonio González

 Instituto Universitario de
 Bio-Organica Antonio González
 Universidad de La Laguna

 Departamento de
 Química Orgánica
 Universidad de La Laguna

 RSEQ
 Real Sociedad Española de Química
 El Sitio de la Química en España

 STICA
 RSEQ
 Sección Territorial de Canarias



 BIOSIGMA

Throughout its twenty-six previous editions, this initiative has consolidated a series of fundamental objectives: to foster cooperation between research groups, promote the exchange of knowledge and experiences, and bring faculty and students closer to current trends in Bio-Organic, Organic Chemistry, Medicinal Chemistry, Biochemistry, Pharmacology, and related areas, to awaken new scientific vocations among young researchers.

The four-day program began on Tuesday, October 28, with an opening ceremony. The first plenary session featured **Prof. Rosario Hernández Galán** from the University of Cádiz, discussing "*Building new molecular architectures using diterpenes of Euphorbia boetica*". This was followed by **Assoc. Prof. Carlos Vila Descals** (Universitat de València) with his lecture about "*Organocatalytic stereoselective functionalization of nitrogen heterocycles*".

The conference continued on Wednesday, October 29. **Prof. Óscar López López** (University of Seville) presented "*New frontiers in the design of drug for complex pathologies*". Later that day, **Prof. Javier Hernández Borges** (ULL) delivered "*Research in micro and nanoplastics: Challenges, evidences and new questions*".

Thursday, October 30, featured the lecture by **Prof. Ana Carmen Albéniz Jiménez** (University of Valladolid) entitled "*Arenes C-H functionalization by metal-ligand cooperation: Una mechanistic look*". Then, **Prof. Jesús Trujillo Vázquez** (ULL) presented his lecture "*A look in the mirror*". This day notably concluded with the "*In Memoriam Session for Dr. Celina García González*" led by **Prof. Ana Estévez Braun**.

The final day, Friday, October 31, began its plenary sessions with "*Search for new renewable solvents. Glycerol derivatives: synthesis, properties and applications*" presented by **Prof. Elizabet Pires Ezquerro** (University of Zaragoza). This 27th edition of the scientific week closed with the lecture delivered by **Prof. Carlos Jiménez González** (University of A Coruña), titled "*Deciphering a groundbreaking siderophore synthesis in Vibrio pathogens*".

<https://www.ull.es/porta/noticias/2025/ull-homenajea-celina-garcia-gonzalez-xxvii-semana-cientifica-antonio-gonzalez/>

XXVII Semana Científica Antonio González

Prof. Rosario Hernández Galán discussed how certain diterpenes with a lathyrane skeleton possess interesting neurogenic activity. This activity is mediated by their ability to modulate Protein Kinase C (PKC) isoenzymes. Her lecture detailed the chemical and biotransformation programs used to optimize this activity and expand the compounds' chemical diversity.



Dr. Carlos Vila explained how the stereoselective functionalization of nitrogen heterocycles is a key strategy for synthesizing drugs and biologically active compounds. His presentation covered methodologies developed by his group that use bifunctional organocatalysis and photocatalysis to achieve stereocontrolled functionalization, aligning with the principles of green chemistry by avoiding transition metals.

Prof. Óscar López López addressed the challenges of treating complex diseases like Gaucher disease, cancer and Alzheimer, which are characterized by a multifactorial etiology. He presented his group's work on the design, synthesis, and evaluation of new multifunctional bioactive derivatives against these pathologies. These derivatives are often based on the rational combination of natural products (like polyphenols or triterpenoids) with organoselenium fragments to create multi-target agents.



Prof. Javier Hernández explained how the fragmentation of plastics has created ubiquitous micro and nanoplastic particles, detected in all environmental compartments and even in humans. His conference provided a comprehensive overview of the current knowledge, emphasizing the significant analytical challenges that remain due to the lack of standardized and sensitive methodologies for their detection.

XXVII Semana Científica Antonio González

Prof. Ana C. Albéniz discussed how the direct C-H functionalization of arenes is a sustainable alternative to conventional coupling but is difficult due to the strength of the C-H bond. The presentation showed how her group uses metal-ligand cooperation, specifically palladium complexes with 2-pyridone ligands (like bipy-6-OH), to facilitate C-H bond breaking and accelerating these reactions.



Prof. Jesús María Trujillo Vázquez, recently retired from ULL, summarized various studies from his scientific career, explaining that the common thread among them was stereochemistry. His talk covered work on determining the absolute configurations of natural and synthetic products. These studies were conducted primarily using Nuclear Magnetic Resonance (NMR) and Circular Dichroism (CD).

Prof. Elísabet Pires Ezquerro focused her talk on glycerol, a renewable byproduct of biodiesel production. Glycerol is an interesting starting molecule for sustainable solvents. Her talk described the design, optimized synthesis, physicochemical properties, and applications of various glycerol-derived solvents. These included ethers, deep eutectic solvents (DES), and ionic liquids.



Prof. Carlos Jiménez González showcased that siderophores are key virulence factors in pathogenic bacteria. His work aimed to study the metabolomic content of siderophores produced by *Vibrio anguillarum*. This led to the identification of new catechol-type analogs (like 2-hydroxy-PCB) and revealed an innovative interaction between two different siderophore biosynthesis systems.

XXVII Semana Científica Antonio González

During the *XXVII Semana Científica Antonio González*, a total of 18 oral communications and 43 posters were presented. The presentations covered a wide range of disciplines.

A large portion of the work, in both oral and poster formats, focused on the search for new drugs. Efforts in developing antiparasitic agents were prominent, with a specific focus on treatments for Chagas disease, leishmaniasis, and amoebic infections. The search for compounds with antitumor anti-inflammatory activity, including the design of NLRP3 inflammasome inhibitors, was also addressed. Much of this research stemmed from the bioprospecting of Canary flora and marine organisms.



Organic synthesis and the development of new catalytic methodologies were another pillar of the conference. Work was presented on the synthesis of heterocycles, including piperidines and tetrahydroisoquinolines, the application of the Prins reaction, and the creation of complex architectures, such as chiral molecular cages.

In the field of sustainable chemistry and materials, studies were shown on catalysts for green hydrogen production and the design of porous chitosan films for CO₂ capture.

Finally, a third thematic block focused on analytical and environmental chemistry. Communications were presented on the issue of microplastics in different matrices, as well as applications of organic chemistry in geoarchaeology and paleoenvironmental reconstruction using lipid biomarkers. Furthermore, new analytical methods were shown for the characterization of products of local interest like aloe vera and banana by-products, as well as for the detection of marine toxins.

The coffee breaks, held concurrently with the poster sessions, provided a valuable and interactive networking space. These informal gatherings allowed participants to discuss their research results in a relaxed atmosphere, often standing directly in front of the relevant poster presentations. This setting was ideal for clarifying doubts directly with colleagues and plenary speakers, leading to deeper, more detailed conversations than the formal sessions permitted. It was during these dynamic breaks that many attendees laid the groundwork for future collaborations and sparked new, innovative ideas.



Keep exploring our research

Driven by a passion for scientific progress, our center continually refines methodologies, pushes boundaries, and uncovers groundbreaking

discoveries. We are proud to share our latest publications, reflecting our ongoing commitment to expanding knowledge.

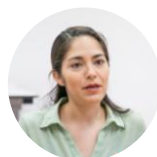


Bioorganic Chemistry
Volume 164, September 2025, 108897



Laurequinone-based synthetic quinones as agents against *Leishmania amazonensis*

Sara García-Davis ^{a b 1}, Atteneri López-Arencibia ^{c d e 1}, Carlos J. Bethencourt-Estrella ^{c d e}, Ana R. Díaz-Marrero ^{f g}, Jacob Lorenzo-Morales ^{c d e}, José E. Piñero ^{c d e}, José J. Fernández ^{a b g}



Dr. Sara García-Davis (Former researcher): "In this work, we explored synthetic derivatives of the marine sesquiterpene laurequinone, simplifying the structure to a cyclopentyl to yield lead compound 2, against *Leishmaniasis*. Homologation to cyclohexyl produced compound 6, the most active (IC_{50} 0.29 ± 0.05 μM ; SI 43) against *L. amazonensis* promastigotes, with selective toxicity versus host cells. Compound 6, ubiquinone-like, collapses mitochondrial membrane potential, lowers ATP, and increases ROS, consistent with electron transport chain blockade."

Read more: [10.1016/j.bioorg.2025.108897](https://doi.org/10.1016/j.bioorg.2025.108897)



Fitoterapia
Volume 186, October 2025, 106826




Antiproliferative withanolides from *Jaborosa riojana*

Virginia Lobatto ^a, Carina N. Casero ^a, Aday González-Bakker ^b, José M. Padrón ^b, Viviana E. Nicotra ^a



Aday González-Bakker (PhD student): "In this work, we evaluate six new isolated withanolides and eleven known analogs from the aerial parts of *Jaborosa riojana*. The new compounds included three with normal glycosylated and three with sativolidic skeletons, fully characterized by NMR and mass spectrometry. Several withanolides exhibited antiproliferative activity comparable to cisplatin and induced apoptosis within 10 hours of treatment. These findings highlight *J. riojana* as a promising source of bioactive withanolides with potential anticancer properties."

Read more: [10.1016/j.fitote.2025.106826](https://doi.org/10.1016/j.fitote.2025.106826)



Frontiers in Chemistry

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Check for updates

Critical assessment of copper-alginate hydrogel beads as recyclable and heterogeneous catalysts for aqueous azide-alkyne cycloaddition

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Agoney González Cabrera (PhD student): "In this work, we developed a sustainable copper(II)-alginate hydrogel catalyst for the aqueous synthesis of 1,2,3-triazoles at room temperature. The catalyst, prepared from a biodegradable matrix with sodium ascorbate to generate active Cu(I), was fully characterized. It delivered >95% yields within 3 hours using 2 mol% catalyst, tolerated a broad range of terminal alkynes, and could be recycled four times with minimal loss of activity. These findings highlight alginate-based materials as efficient and eco-friendly supports for transition-metal catalysis."

Read more: [10.3389/fchem.2025.1644592](https://doi.org/10.3389/fchem.2025.1644592)




Article

Potential Inhibitors of Human-*Naegleria fowleri* Interactions: An In Vitro Extracellular Matrix-Based Model

Javier Chao-Pellicer ^{1,2,3,4}, Iñigo Arberas-Jiménez ^{1,2,4}, Ines Sifaoui ^{1,2,3}, Ana R. Díaz-Marrero ^{4,5,6}, José J. Fernández ^{4,6,7}, Melissa Jamerson ^{8,9,*}, José E. Piñero ^{1,2,3,4,6} and Jacob Lorenzo-Morales ^{1,2,3,4}



Dr. José J. Fernández (ULL researcher): "In this work, we investigated the effects of laurinterol and (+)-elatol on the adhesion of *Naegleria fowleri* trophozoites to extracellular matrix proteins using an in vitro ECM-based model. Their activity was compared with amphotericin B and staurosporine. Both sesquiterpenes inhibited parasite adhesion at various concentrations and exposure times. These results highlight their therapeutic potential against primary amoebic meningoencephalitis and introduce ECM-based adhesion assays as a valuable tool for screening compounds that disrupt host-pathogen interactions."

Read more: [10.3390/md23080306](https://doi.org/10.3390/md23080306)