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ASIFF

Newsletter

Academic Society of Insects as Food and Feed



Welcome to the 4th edition of the ASIFF newsletter!

In this issue, we invite ASIFF members to explore exciting events which are shaping the world of edible insects, including EntoFest 2015 ("Insects in Action: From Research to Sustainable Innovation") in Colombia, Bugs in Mugs 3 in Belgium, and "Les insectes: c'est quoi le buzz?" in Canada.

You will discover cutting-edge insect research from Dr. Karol Barragán-Fonseca and her team at the Research Center for Terrestrial Arthropods (CINAT), as well as the work of Dr. Saleha Mahmood and Arthur Thompson de la Chenelière. This issue also features highlights of recent publications and a hands-on guide for making dog treats with crickets.



While many exciting developments in the field of edible insects still lie ahead, one important event is already on the horizon **Insects to Feed the World (IFW2026)** conference, taking place June 9-12, 2026 in Torino, Italy.

Do not miss the upcoming abstract submission deadline!

Discover a cricket-based dog treat recipe by Dr. Linh Bao Nguyen on page 16

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EntoFest 2025:

Insects in action: from research to sustainable innovation

On November 7, 2025, the Research Center for Terrestrial Arthropods (CINAT) of the Universidad Nacional de Colombia hosted EntoFest 2025, a hybrid symposium held at the auditorium of the Institute of Natural Sciences in Bogotá. EntoFest is the official scientific symposium of CINAT and serves as a platform to share ongoing research, foster collaboration, and discuss the role of terrestrial arthropods in sustainable development.



CINAT Group EntoFest2025



Cristiano Garino's presentation

This edition was held under the theme “Insects in action: from research to sustainable innovation” and brought together researchers, students, practitioners, and institutional partners interested in insect conservation, production, bioprospecting, and food and feed systems. The event aimed to strengthen national and international research networks while creating an open space for dialogue between basic research, applied science, and innovation.



Demonstration during EntoFest 2025

A central focus of EntoFest 2025 was the presentation of advances from BioInsectonomy, a tri national project involving Colombia, Germany and Norway, focused on the use of insects as organic waste bioconverters and as sustainable sources of food and feed for humans and animals. The project reflects CINAT's interdisciplinary approach, integrating entomology, sustainability, food safety, and socio territorial perspectives while promoting international cooperation.

EntoFest 2025

The symposium featured the special participation of Cristiano Garino and Hermann Broll from the German Federal Institute for Risk Assessment (BfR), Department Reference Centre for Food and Feed Analysis. Their contributions addressed recent developments in insect identification in feed, detection methods based on inherited material specific to animal and plant species, and regulatory and analytical challenges related to insect-based food and feed systems. Additional international perspectives were provided through virtual presentations on EU oriented guidelines for insect farming and the upcycling of processed animal proteins.

Complementing the scientific sessions, EntoFest 2025 included a continuous entomophagy showcase, allowing participants to engage directly with insect-based preparations developed in Colombia. This experiential component facilitated discussion on cultural acceptance, product development, and communication challenges around edible insects.



EntoFest 2025



Hermann Broll's presentation

EntoFest 2025 reaffirmed its role as a collaborative and inclusive space, connecting research, innovation, and education. Beyond presenting results, the event highlighted the importance of building long term partnerships and shared understanding to support sustainable insect-based solutions in Latin America and beyond.



CINAT presentation

Written by Karol B. Barragán-Fonseca

Meet Dr. Karol Barragán-Fonseca

Karol B. Barragán-Fonseca is an Associate Professor at the Universidad Nacional de Colombia (UNAL) and leader of the ASIFF Working Group on Sustainability in Insect Farming. Her research focuses on insects as nature based solutions, exploring their roles as food and feed, providers of ecosystem services, and key actors in circular bioeconomy systems. Through initiatives such as Insectonomy, she develops conceptual and analytical frameworks to better understand and compare the productive and ecosystem potential of insect diversity across different socio ecological and territorial contexts. Her experience has also led her to critically examine the academic foundations of sustainability in the insect sector, contributing to more grounded and context aware discussions on its future development.



Dr. Karol B. Barragán-Fonseca

In parallel, she actively promotes interdisciplinary and visual approaches to science communication, convinced that insect science must be shared in diverse and accessible ways.

Research Center for Terrestrial Arthropods (CINAT)

The CINAT (Center for Research on Terrestrial Arthropods) is a research group and laboratory at the National University of Colombia, created in 2011. CINAT develops insect-based solutions for food security, bioeconomy and sustainability, focusing on insects as food for human and animal consumption, as bioconverters of organic residues, and as nature-based solutions in rural and urban contexts. Our work integrates laboratory research, applied science, public policy support and science communication, in close collaboration with public and international institutions.



CINAT Lab

Current projects and initiatives include:

- Insectos por la Paz, using insects as nature-based solutions for social and territorial transformation.
- BioInsecta Bogotá, a bioeconomy ecosystem funded by the Scientific Agency of the District of Bogotá, composed of ten projects addressing urban challenges through insect-based solutions.
- Insectonomy, a framework to assess the socio-ecological roles of insects and support decision-making.
- BioInsectonomy, focused on circular economy and insect-based bioconversion.
- NutrInsecta, combining insect bioprospecting, food products for human consumption, and public policy support.
- EntoPro, a university spin-off providing technical consultancy for insect-based bioconversion projects.
- Science communication: Through board games, visual tools, infographics and fanzines designed for different audiences and communities.

New articles highlights

Edible Insects in Latin America: A Sustainable Alternative for Our Food Security

Silvana Abril , Mariana Pinzón, María Hernández-Carrión and Andrea del Pilar Sánchez-Camargo

Edible insects are emerging as a promising high-protein and environmentally friendly option, particularly in Latin America. This review compiles and examines edible insect alternatives in the region, including existing and potential insect-based products, while highlighting their nutritional value and contribution to food security.

Edible insects' paradox: biotechnological standpoint on balancing the duality of microbial pathogen and bioactive peptides for health benefits

Christopher Busayo Olowosoke, Richmore Chiamaka Ibeh, Blessing Awoyemi, Tope Abraham Ibisani, Prosper Obed Chukwuemeka

Edible insects present a unique paradox as sustainable food sources that can harbor microbial pathogens while also providing health-promoting antimicrobial peptides (AMPs) with potential to combat antimicrobial resistance and support functional food and therapeutic innovation. This review explores this duality by integrating microbial risk management with AMP bioactivity, emphasizing the need for proper regulation, biotechnological approaches, and cross-disciplinary collaboration to safely advance edible insect-derived AMPs for global health and food security.

Entomophagy beyond nutrition: An underexplored source of bioactive peptides for biopharmaceutical innovation

Christopher Busayo Olowosoke, Prosper Obed Chukwuemeka

As achieving the Sustainable Development Goals 2 and 3 becomes increasingly challenging, edible insects, already consumed in some regions, offer a nutrient-rich food source and a promising reservoir of bioactive peptides with therapeutic potential, highlighting the need for greater scientific focus on their use in pharmaceutical innovation.



Want to share your research? Email us at info@asiff.org



Explore new articles

The disadvantage of having a big mouth

Marshall W. Ritchie, Emily R. McColville, Jennie E. Mills, Jennifer F. Provencher, Susan M. Bertram, Heath A. MacMillan

Bioconversion of honey bee colony waste by small hive beetle (Coleoptera: Nitidulidae) larvae and the nutritional composition of larvae and frass

Francisco Posada-Florez, Jayden C Steward, Emylia L Loaiza, Steven C Cook

Insects are a viable protein source for human consumption: from insect protein digestion to postprandial muscle protein synthesis in vivo in humans: a double-blind randomized trial

Wesley JH Hermans, Joan M Senden, Tyler A Churchward-Venne, Kevin JM Paulussen, Cas J Fuchs, Joey SJ Smeets, Joop JA van Loon, Lex B Verdijk, Luc JC van Loon

Diversifying the promise of insect agriculture

C.J. Picard, H.R. Jordan, and J.K. Tomberlin

Understanding the influence of sensory characteristics on emotional responses and acceptance of insect-based spreads

Ditta Hakha Soleha, Matthijs Dekker, Maryia Mishyna

Immunity of the black soldier fly (*Hermetia illucens*): recent progress and technological applications

Daniele Bruno, Amr Mohamed, Rasha K. Al-Akeel, Hend M. Alharbi, Gianluca Tettamanti, Ioannis Eleftherianos



Did you know?

that ASIFF members have exclusive access to a curated list of recent publications in the field of edible insects? This resource is updated every month, helping members stay informed about the latest research, trends, and innovations in insect-based food and feed.

You can explore it here: <https://asiff.org/research/latest-publications/>

Creating Circular Economy of Waste using Black Soldier Fly Larvae (BSFL) Technology

Sustainable management of organic/food waste is one of the most neglected issues in the low-and-middle income countries. It accounts for more than 50% of the municipal solid waste, where huge amounts remain either uncollected or gets mixed at producer level. This biodegradable component is an underutilized resource due to perceived lower economic value unlike other conventional recyclables, resulting in serious environmental pollution, human health risks and huge management costs. This chapter highlights prioritizing inclusion of Black Soldier Fly Larvae (BSFL) technology in waste management hierarchy as a promising circularity solution allowing to re-think organic waste as a resource to combat food-feed-fertilizer crisis. The two tier circular models of BSFL organic waste valorization proposed at household, community and food supply chain levels may also help parallel recycling businesses to grow by providing cleaner waste streams. Application of BSFL technology also acts as an innovative behaviour change intervention encouraging waste segregation at source - a prerequisite to achieve the objectives of the circular economy. Decentralized waste management with BSFL and systemized waste banking can save huge transport and disposal costs and create localized economy.

The publication also provide knowledge on design, operational and environmental factors for running an efficient BSFL facility along with economic potential of fractioning various BSFL products such as protein, frass, chitin, fats, melanin, peptides, antioxidants and enzymes.

Citation: Mahmood, S. (2025). Creating Circular Economy of Waste Using Black Soldier Fly Larvae (BSFL) Technology. In: Shahbaz, M., Sharma, G.D., Gedikli, A., Erdoğan, S. (eds) Global Pathways for Efficient Waste Management and Inclusive Economic Development. Springer, Singapore. https://doi.org/10.1007/978-981-96-5569-4_9



Meet the author



Dr. Saleha Mahmood

I am an environmental scientist and have been working on Black Soldier Fly Larvae (BSFL) since 2018. I hold the honor of designing, establishing and operating Pakistan's first two BSFL rearing and food waste valorization facilities meant for research and training purposes. I also became Pakistan's first PhD who scientifically reared BSF at field scale and assessed its performance under ambient weather conditions of a semi-arid region, supporting local farming with low-tech infrastructure. I successfully reduced the space foot of BSF waste treatment to five times with significant waste reductions. My flagship projects include developing and evaluating decentralized BSFL municipal organic waste valorization systems at household and community level.

The purpose was to encourage waste segregation at source, increase social acceptance for BSF farming and bioconvert that waste into animal feed and soil fertilizer. I also designed simplified rearing methodologies, structures and developed SOPs for decentralized waste management systems governed by insect farming. My mission is to shift this novel technology beyond labs to practical application with a goal to solve the real world problem of food waste, soil crisis and food insecurity, making circularity a reality.

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Bugs in Mugs 3

Sustainability and Nutrition: Engaging Students with Insect-Based Foods

The 3rd edition of Bugs in Mugs was held at University of Applied Science (HEPH – Condorcet) in Tournai (Belgium), as part of the 2025 ARES Mobilization Project in collaboration with research laboratory. Building on the successes of the 2022 and 2023 editions, this event aimed to engage students with the nutritional, environmental, and socio-economic opportunities of entomophagy, while promoting education on sustainable food practices.

This year, Bugs in Mugs 3 focused specifically on future paramedical professionals, inviting students from Public Health programs to participate in discussions, workshops, and hands-on activities. The event was designed to foster interdisciplinary exchanges on sustainability, nutrition, and the challenges of introducing insect-based foods into everyday diets.



Workshop on an escape game about insect production and consumption

Key activities included scientific workshops and practical exercises. Students attended lectures on entomophagy, its health benefits, and its role in addressing global challenges such as malnutrition and sustainable food systems. They also took part in surveys and focus groups to explore perceptions of insect consumption, contributing to ongoing research and creating data that will inform future educational materials and scientific publications.

Interactive sessions emphasized experiential learning. Workshops featured taste tests, cooking demonstrations, and games to explore the nutritional value of insects. Participants also engaged in content creation activities, including recipe development and educational tools, which will serve as resources for peers and future professionals. By experiencing insect-based foods directly, students could challenge cultural conceptions and increase acceptance of sustainable protein sources.



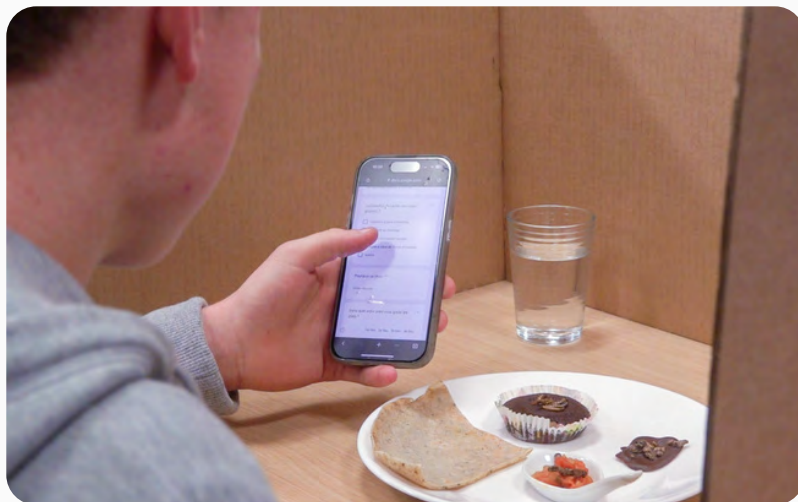
Opening of the conference Bugs in Mugs III by Sophie Soens



Presentation of various insect-based products, particularly the Nimavert product range

Bugs in Mugs and Sustainable Development Goals

Through these activities, Bugs in Mugs 3 aimed to strengthen student awareness of the UN Sustainable Development Goals, particularly zero hunger, good health and well-being, quality education, responsible consumption and production, and climate action. By combining scientific education, practical experience, and collaborative learning, the event promoted both personal engagement and broader societal understanding of sustainable food solutions.



Food tasting session using insect-based products

Additionally, the event connected students with industry partners, such as Entomobio, Nimavert and professional networks including the Belgian Insects Industry Federation (BIIF). Students gained insight into insect production processes, product development, and applications in both human and animal nutrition. International collaborations also highlighted practices from the Global South, reinforcing the global relevance of entomophagy.



Workshop presenting the Sustainable Development Goals

Contacts

Matthias Gosselin (Laboratory of entomology), matthias.gosselin@condorcet.be

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Shared by Matthias Gosselin, Stéphanie Crabeck and Sophie Soens

Event Highlight

Les insectes: c'est quoi le buzz?



On November 15, students from the Chaire de leadership en enseignement en production et en transformation primaire d'insectes at Université Laval (CLEIC) led an introductory workshop on edible insects as part of the Les filles et les sciences event. This province-wide initiative aims to introduce scientific and technological careers to high-school girls across Québec.

The Faculty of Agriculture and Food Sciences was represented through the workshop "Les insectes: c'est quoi le buzz?", where participants explored the potential of insects to reduce food waste and serve as an alternative source of sustainable protein. As a bonus, the students had the opportunity to observe and handle live insects (black soldier flies and mealworms) and to taste a variety of locally made insect products, including spreads, protein shakes, and seasoned roasted insects, some even flavoured with maple syrup!

This activity is part of the CLEIC's broader mission to introduce edible insects to a wide audience through a variety of science outreach initiatives. Over the years, the team has developed and taken part in numerous educational efforts, including interactive school presentations, public event booths, and other creative activities highlighting the value of entotechnologies. Since 2021, the CLEIC has carried out nearly 40 outreach events aimed at engaging both youth and the general public in the growing field of edible insects.

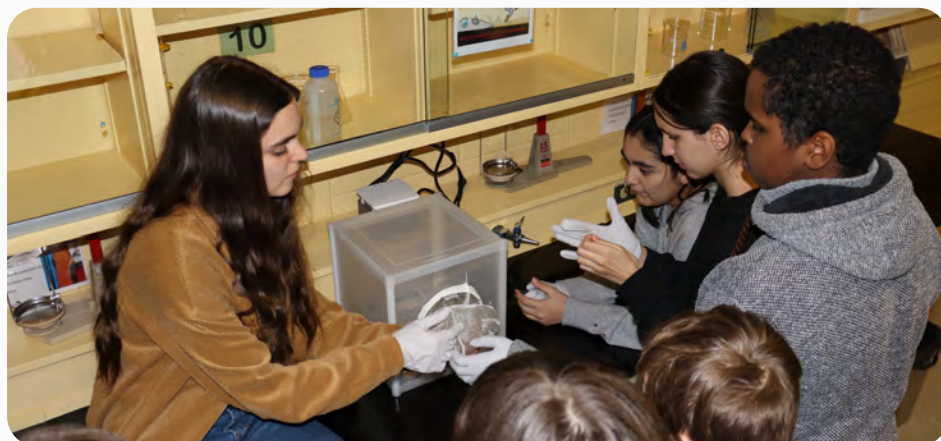
What inspired you to bring edible insects to this event focused on young girls and science?

Edible insects are innovative and instantly spark curiosity. They were the perfect way to showcase agricultural and food sciences from a more modern and "cool" angle than the conventional image often associated with the field.



Students attending the workshop

What were the students' first reactions to seeing or learning about edible insects?



Hands-on experiences

Many students were either excited or slightly hesitant at first, but almost all of them were curious. They asked lots of questions, especially about how insects are raised and how they could start their own colony at home.





Les insectes: c'est quoi le buzz?

Can you describe a memorable moment or question that stood out during the workshop?

One of the best moments is always watching the girls who are hesitant to taste insect-based products... and then come back for seconds because they actually enjoyed them. Even better is seeing them convince their more reluctant friends to try as well.



Students find interest in mealworms and BSF

How did you structure the workshop to make it interactive or hands-on for the students?

We made sure to break up the presentation with interactive moments. For example, when discussing entomophagy, we asked them what they imagined insects might taste like. Then, we invited them to try some directly. We also ended the workshop with a hands-on look at the life cycle of edible insects, where participants could handle black soldier flies and mealworms. With small challenges like collecting mealworm pupae from the trays, they had a lot of fun.

Why do you think it's important to include edible insects in early science education or outreach?

As we explain in the workshop, the earlier young people are introduced to insects, the less likely they are to feel disgust as they get older. It's a matter of familiarity and culture, and early exposure helps prevent misinformation or fear.

If one takeaway from the workshop could stick with every participant, what would you hope it is?

The potential of edible insects goes far beyond "funny" or unusual foods. Insects represent a real solution for managing organic residual materials and producing sustainable ingredients for both human and animal nutrition.

Photos provided by Marie-Hélène Deschamps

Member Research Highlights

What is your research about?

My research aimed to assess the potential of powdered shrimp shells as an ingredient for black soldier fly (BSF) larvae diets. I studied how including it at increasing concentrations affected their growth, bioconversion performances, nutritional composition, and development speed through the pupa and imago stages. I also studied the impacts of adding calcium carbonate at similar rates, since shrimp shells contain high amounts of it, like many marine products.

Why focus on BSF and shrimp co-products?

This co-product is massively produced by shrimp shelling plants in Québec but doesn't have a domestic market. We hoped to include it in the BSF bioconversion process, to bolster the nutritional value of the larvae while increasing sustainability of the shrimp fisheries industry. BSF larvae are very resilient and adaptable, able to convert a wide variety of waste streams into feed and fertilizer, so we expected they could handle these shells despite their calcium and chitin content.



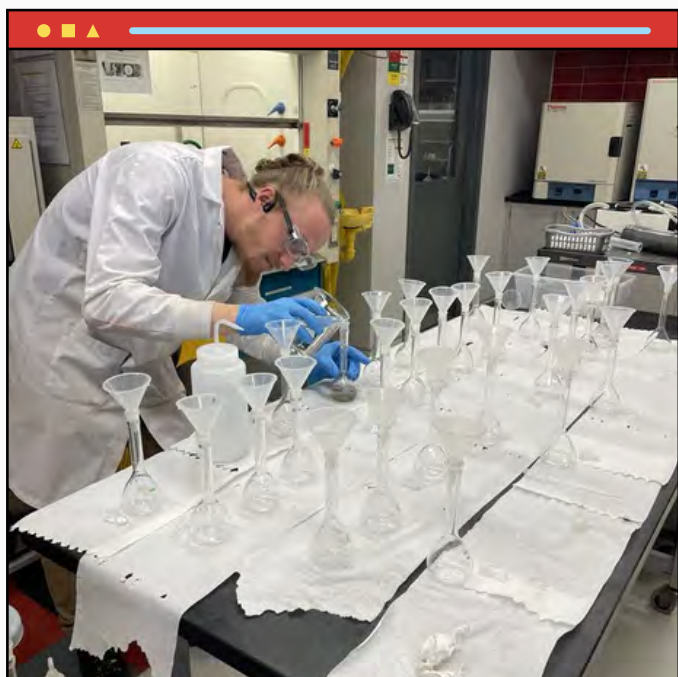
Arthur Thompson de la Chenelière

Master's student in animal sciences,
Département des sciences animales,
Faculté des sciences de l'agriculture et
de l'alimentation, Université Laval



What did you find?

Diets containing shrimp shells did not improve performances, nutritional composition or development speed as compared to the control diet. We found that diets containing more than 8% calcium (40% shrimp shells) inhibit larval growth, decrease bioconversion rates, and delay adult emergence. This was consistent across diets containing shrimp shell powder and calcium carbonate powder. We found that larvae in these diets accumulated more calcium, which could indicate that their regulation mechanisms were overwhelmed, leading to decreased performance.



Sample preparation

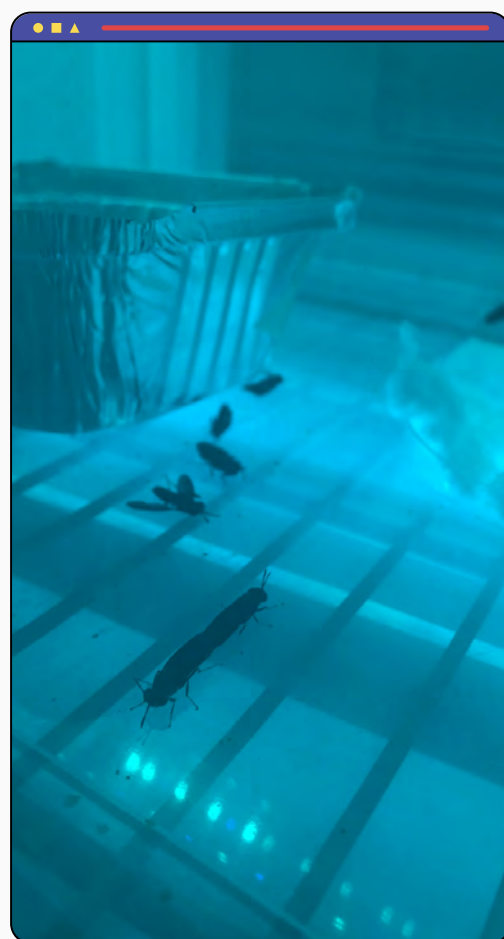
Member Research Highlights

Why does it matter?

These results identify calcium carbonate as an important limiting factor in BSF larvae bioconversion, that should be considered while assessing new waste streams for potential upcycling. They also provide a tolerance threshold which may be useful for the bioconversion of other residues with high calcium carbonate content (marine residues, digestate, milk processing co-products).



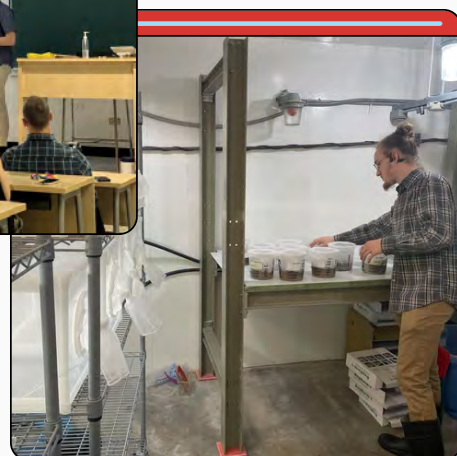
Working with the team



Black soldier fly reproduction

What's next?

Further research on BSF could focus on understanding the physiological mechanisms responsible for the disturbance caused by calcium carbonate. Osmotic stress, ion transport disorders, and the limited sequestration capacity of the Malpighian tubules are interesting leads which haven't been studied much in BSF. To mitigate this issue and enable better bioconversion, the use of chelating agents in shrimp shell diets could be a promising avenue.



Conducting research and presenting results

Photographs provided by Arthur Thompson de la Chenelière

Insects to Feed the World 2026 (ifw2026.org)

Ten years after its first successful edition in Wageningen, the Insects to Feed the World (IFW) international conference has become a global leading event in the insect farming sector, bringing together academics and industry professionals from all over the world.

Abstract submission deadline: January 23, 2026



Discounted registration fee for ASIFF members

Registration Fees provide access to all conference sessions, coffee breaks and lunches, and the welcome cocktail reception.

	Early	Standard	Onsite
Researcher/Industry - ASIFF members	630,00 €	850,00 €	930,00 €
Students - ASIFF members	405,00 €	550,00 €	600,00 €
Researcher/Industry from low-income-countries - ASIFF members	405,00 €	550,00 €	600,00 €
Researcher/Industry non-ASIFF members	700,00 €	850,00 €	930,00 €
Student - non-ASIFF members	450,00 €	550,00 €	600,00 €
Researcher/Industry from low-income-countries - non-ASIFF members	450,00 €	550,00 €	600,00 €

Note that, in order to qualify for the ASIFF reduced fee, registration for the congress must be completed using the same email address provided during ASIFF membership registration, as email matching is necessary to verify member status.

5th International Symposium

Research and Application of Black Soldier Fly and Microbes

From October 15–18, 2025, the 5th International Symposium on Research and Application of Black Soldier Fly & Microbes was held in Zhengzhou, China. The event brought together leading international experts in insect science, microbiology, and sustainable biotechnologies.

One of the organizers, Kashif ur Rehman, played a key role in convening researchers and practitioners from around the world to exchange knowledge and foster collaboration.

During the symposium, the ASIFF roll-up banner and flyer were showcased internationally for the first time, marking an important milestone in ASIFF's global outreach. ASIFF's mission, activities, and impact were further highlighted during keynote presentations delivered by Longyu Zheng, Arnold van Huis, and Maryia Mishyna.



Course

Black Soldier Fly: Boosting a Sustainable Future



How can one insect reshape the global food system? The Black Soldier Fly (BSF) is rapidly gaining attention for its unique ability to transform organic waste into high-value protein, oils, and fertilizer. As the demand for sustainable solutions in food, feed, and farming grows, BSF offers a scalable and impactful answer. This course empowers professionals to understand and apply the full BSF value chain.

Date

23-27 March 2026

Location

Wageningen Campus, the Netherlands



Cricket Pet Treats

A nutritious home-made delight for cats and dogs

Ingredients

- 1 cup dry ground crickets (cricket powder)
- 1 cup flour
- 1/2 cup fine oat
- 1 tbsp catnip (optional)
- 1 cup pumpkin puree
- 1 mashed banana
- 2 eggs
- 2 tbs olive oil
- 1/2 tbs fish oil (optional)



Directions

1. Preheat the oven to 180°C (350°F) and line a baking tray.
2. Mix all dry ingredients in a bowl.
3. In a separate bowl, combine and mix the wet ingredients until smooth.
4. Gradually add the dry ingredients to the wet mixture until a firm dough forms (add a little extra flour if necessary).
5. Roll out on a lightly floured surface to about 3 mm thickness. Use your favourite cookie cutters to cut shapes and transfer them onto the baking tray.
6. Bake for approximately 20 minutes, or until golden brown and crisp.
7. Allow to cool completely on a wire rack. Store them in an airtight container in the refrigerator for 2-3 weeks or freezer for longer.



Recipe provided by Dr. Linh Bao Nguyen

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Postdoctoral Research Associate, Research Center for Humanities and Social Sciences, Academia Sinica, Taiwan

Follow C.Canteen on facebook.com/c.canteen.tw

Tip: Rounded shapes are gentler for pets' sensitive mouths. Consider smaller-sized cookies or kibbles for cats. You can adjust the ingredients to suit your pets' preferences by adding their favourite pet-safe ingredients.



Would you like to be featured in the next ASIFF newsletter?

Interested to participate in ASIFF communication activities (newsletter, website, etc)?

Contact us by sending an email to info@asiff.org



Editors of ASIFF newsletter, issue 4: Maryia Mishyna and Cassandra Maya