Newsletter N°10 on Insects for feed, food and bioconversion of organic substrates

Items published between 01 June and 31 July 2024

This newsletter is produced by a research team on entomoconversion and the “Direction pour la Science Ouverte” (DipSO). It is the result of multi- source monitoring (media, articles, ...).

Scope :

- **Europe/France**
- **Thematics axes** : insects (Tenebrio molitor et Hermetia Illucens) , substrates (organic waste, by-products, ...), industrials applications and products (frass, fertilizer, ...)
- **Sources** : articles, information on ongoing and completed projects, regulatory documents, calls for expressions of interest, private sector activities.

Note : Items in this newsletter do not represent INRAE's position.

Call for proposals, call for tenders, congress

Sources: ANR, Horizon Europe, BPI...

14/07/2024

Des insectes et des hommes pour un avenir durable - Colloque scientifique - Tours - 14 & 15 octobre 2024

CNRS Écologie & Environnement organise les 14 et 15 Octobre 2024 à Tours une rencontre sur le thème des innovations en entomologie. Ces journées sont destinées aux personnels des unités de recherche pour lesquelles le CNRS est tutelle et ...

insecte-innovation.sciencesconf.org

Substrate - media

Sources : mainstream media, regulatory sources, institutionnal, company,..

30/07/2024

Genetically engineered insects could transform waste management

A team from Macquarie University has explored the potential use of genetically modified black soldier flies (Hermetia illucens) to address worldwide pollution challenges and produce valuable raw materials for industry, including the US$500 billion ...

www.sustainabilitymatters.net.au

hermetia illucens

30/07/2024

Assessing safety of non-permitted waste streams for rearing insects for feed

Mass rearing of insect larvae for protein in animal feeds is an emerging technology that many believe will be vital in replacing the “protein ...

www.allaboutfeed.net

hermetia illucens

29/07/2024

Insects as biofactories: Turning dangerous waste into valuable products

"We can feed black soldier flies straight, dirty trash," says a team that's working to turn insects into landfill-clearing biomanufacturing machines ...

newatlas.com

hermetia illucens

20/06/2024

City of Sydney trials insects to transform food waste

Lord Mayor of Sydney Clover Moore and Goterra Chief Executive Offficer Olympia Yarger. Image: Nick Langley/City of Sydney Maggots will consume ...

wastemanagementreview.com.au

hermetia illucens

19/06/2024

NAIC to serve as innovation hub for insect protein industry

NRGene Canada and Bühler have launched the North American Insect Center (NAIC) for sustainable protein production. The companies point out that ...

www.feedandadditive.com

hermetia illucens

17/06/2024

TriCycle veut faire un meilleur usage de votre compost, en élevant des insectes

Le problème Au Canada, plus de la moitié de la nourriture est gaspillée. Or, les déchets alimentaires génèrent une part importante des gaz à ...

infobref.com

Substrate - articles

Sources : HAL, Pubmed, BASE, MDPI, F100Research, Jounal of Insects as Food and Feed, ...

25/07/2024

Black soldier fly larvae efficiently bioconvert the organic fraction of municipal solid waste thanks to the ...

Abstract The saprophagous larvae of Hermetia illucens show promising potential as effective agents for bioconverting organic waste and by-products ...

brill.com

hermetia illucens

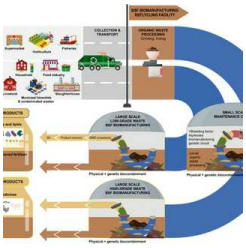
25/07/2024

Age and calorific restriction impact immature black soldier fly (Diptera: Stratiomyidae) thermal tolerance ...

Abstract Thermal tolerance and preference are traits commonly considered when mass-producing farmed animals as temperature impacts production. ...

brill.com

hermetia illucens



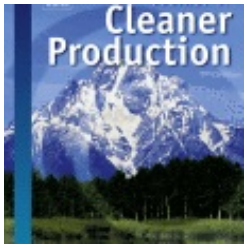
24/07/2024

Diverting organic waste from landfills via insect biomanufacturing using engineered black soldier flies (Hermetia ...

This perspective describes how insects, such as Hermetia illucens, which are already used to process organic wastes at industrial scales, could ...

www.nature.com

hermetia illucens



23/07/2024

Estimating the dynamics of greenhouse gas emission during black soldier fly larvae growth under controlled ...

Edible insects are considered a sustainable alternative protein source. Several studies have indicated that greenhouse gas (GHG) emissions from ...

www.sciencedirect.com

hermetia illucens

23/07/2024

Performance of Hermetia illucens reared on pure, mixed, and sequentially mixed organic wastes regionally available ...

Abstract Black soldier fly larvae (Hermetia illucens L.) are proficient decomposers of organic matter. We compared experiments with local substrates ...

brill.com

hermetia illucens

20/07/2024

Carbon and water footprint assessment of the production cycle of the black soldier fly (Hermetia illucens) ...

A comprehensive investigation into the carbon and water footprint of a black soldier fly (Hermetia illucens) farm in Murcia, Spain, was carried ...

www.sciencedirect.com

hermetia illucens

19/07/2024

Retention of prions in the polychaete Hediste diversicolor and black soldier fly, a Hermetia illucens, larvae after short-term experimental immersion and feeding with brain homogenate from scrapie ...

Finding alternative protein and lipid sources for aquafeeds is crucial for the sustainable growth of fed aquaculture. Upcycling industrial side streams and byproducts using extractive species can reduce waste and help reduce the sector's dependence ...

www.cell.com

hermetia illucens

19/07/2024

Microplastics Biofragmentation and Degradation Kinetics in the Plastivore Insect Tenebrio molitor - Peng et al.

The insect Tenebrio molitor possesses an exceptional capacity for ultrafast plastic biodegradation within 1 day of gut retention, but the kinetics remains unknown. Herein, we investigated the biofragmentation and degradation kinetics of different ...

pubs.acs.org

tenebrio molitor

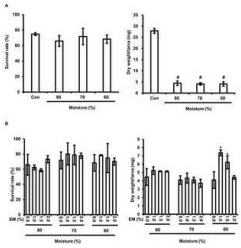
18/07/2024

Recirculating frass from food waste bioconversion using black soldier fly larvae: Impacts on process efficiency and product quality - Lopes et al.

Biowaste generation is increasing worldwide and inadequate disposal has strong negative impacts on food systems and ecosystems. Biodigestion of biowas...

www.sciencedirect.com

hermetia illucens



18/07/2024

Resource Utilization of Residual Organic Sludge Generated from Bioenergy Facilities Using Hermetia illucens ...

Residual organic sludge generated from bioenergy facilities (BF-rOS) is often disposed instead of recycled, thus contributing to further environmental ...

www.mdpi.com

hermetia illucens

18/07/2024

Cultivating black soldier fly (Hermetia illucens) larvae on coconut endosperm and soybean curd residue: Impact on growth performance, waste reduction efficiency and larval nutritional composition ...

Black soldier fly larvae (BSFL), Hermetia illucens (Diptera: Stratiomyidae), offer sustainable waste management and serve as protein and fat sources. We studied BSFL growth, waste reduction, and nutr...

onlinelibrary.wiley.com

hermetia illucens

18/07/2024

Sphingobacterium tenebrionis sp. nov., isolated from intestine of mealworm - Zhang et al.

A bacterial strain designated PU5-4T was isolated from the mealworm (the larvae of Tenebrio molitor) intestines. It was identified to be Gram...

www.microbiologyresearch.org

tenebrio molitor

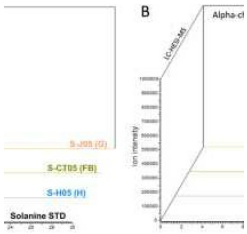
17/07/2024

Adoption potential of black soldier fly (Hermetia illucens (L.), Diptera: Stratiomyidae) larvae composting ...

As the world's population increases, the growing demand for food intensifies the generation of agricultural waste, leading to several environmental is...

www.sciencedirect.com

hermetia illucens



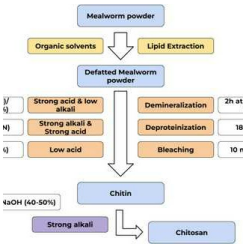
17/07/2024

Analysis of glycoalkaloid distribution in the tissues of mealworm larvae (Tenebrio molitor) - Winkiel et al.

Solanine (SOL) and chaconine (CHA) are glycoalkaloids (GAs) produced mainly by Solanum plants. These plant secondary metabolites affect insect ...

www.nature.com

tenebrio molitor



13/07/2024

Recent Advances in Biorefinery of Tenebrio molitor Adopting Green Technologies - Muñoz-Seijas et al.

Insects are promising alternatives to meet the world population's demand for high-quality foods and to overcome important issues in animal farming ...

link.springer.com

tenebrio molitor

13/07/2024

Gut microbial comminoty in Tenebrio molitor larvae responsed to PS and PE within 6 hours - Zhang et al.

Gut microbes of Tenebrio molitor larvae are crucial in plastic degradation. However, microbial responses to the plastic feeding remains unclear. ...

www.sciencedirect.com

tenebrio molitor

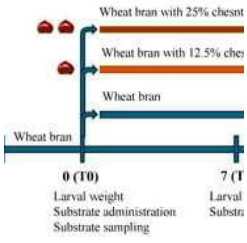
10/07/2024

Effects of Organic Xenobiotics on Tenebrio molitor Larvae and Their Parasite Gregarina polymorpha - Lazurska et al.

Environmental contamination with xenobiotics affects organisms and the symbiotic relations between them. A convenient object to study relationships between parasites and their hosts is the host–parasite system "Tenebrio molitor Linnaeus, 1758 ...

www.mdpi.com

tenebrio molitor



09/07/2024

Characterisation of Tenebrio molitor Reared on Substrates Supplemented with Chestnut Shell - Ferri et al.

Tenebrio molitor larvae represent a sustainable protein source for food and feed. The aim of this study was to evaluate the supplementation of ...

www.mdpi.com

tenebrio molitor

06/07/2024

Moving towards fully circular insect production: A focus on insect-derived biowastes - Purkayastha et al.

Over the last decade, commercialization of insects for food and feed has been exponentially increasing. Insect protein is emerging as a sustainable li...

www.sciencedirect.com

hermetia illucens

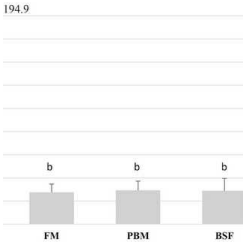
05/07/2024

Growth performance, proximate composition and fatty acid profile of black soldier fly larvae reared on two ...

The black soldier fly (Hermetia illucens) is attracting increasing interest for its ability to convert low-value substrates into highly nutritious ...

www.sciencedirect.com

hermetia illucens



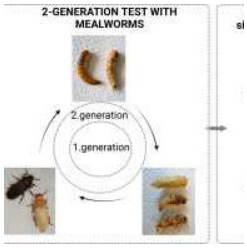
05/07/2024

Tracing the journey of elements from fish feed to Nile tilapia faeces to black soldier fly larvae: a comparative ...

IntroductionThe circular bioeconomy concept revolves around biological production cycles that reintroduce products or waste from one production ...

www.frontiersin.org

hermetia illucens



05/07/2024

Effects of agricultural microplastics in multigenerational tests with insects; mealworms Tenebrio molitor ...

Mulching films, widely used in agriculture, are a large source of microplastics (MPs) to soil. However, there is little knowledge on the long-term ...

www.sciencedirect.com

tenebrio molitor

02/07/2024

Wheat starch processing by-products as rearing substrate for black soldier fly: does the rearing scale matter? ...

Rearing scale may influence black soldier fly (BSF) larvae traits when they are fed on a single diet, but different feeding substrates have not ...

www.sciencedirect.com

hermetia illucens

02/07/2024

First results on the effect of Bacillus thuringiensis kurstaki on meal moths in a mealworm farm - Deruytter ...

Abstract The mediterranean flour moth (Ephestia kuehniella Zeller (Lepidoptera: Pyralidae), is a common pest species in mealworm farms as they ...

brill.com

tenebrio molitor

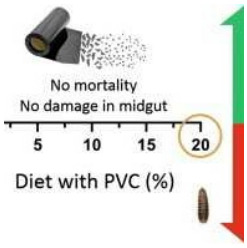
30/06/2024

Synergistic impacts of antibiotics and heavy metals on Hermetia illucens: Unveiling dynamics in larval gut ...

Hermetia illucens larvae showcases remarkable bioremediation capabilities for both antibiotics and heavy metal contaminants. However, the dis...

www.sciencedirect.com

hermetia illucens



28/06/2024

Microplastics in the diet of Hermetia illucens: Implications for development and midgut bacterial and fungal ...

In a world with a population exceeding 8 billion people and continuing to grow, pollution from food and plastic waste is causing long-term issues ...

www.sciencedirect.com

hermetia illucens

26/06/2024

A Multidisciplinary Approach for the Development of a Supply Chain in Biomass Conversion of Ag... Waste .. Waste ...

Black soldier fly larvae (BSFL) can convert various organic substrates into high added-value biomass. In addition, the residue can be used as ...

www.mdpi.com

hermetia illucens

25/06/2024

Tracking lipid synthesis using 2H2O and 2H-NMR spectroscopy in black soldier fly (Hermetia illucens) larvae ...

Summary: Delivery of deuterated water coupled with nuclear magnetic resonance (NMR) spectroscopy as a tool for tracing lipid synthesis in an ...

journals.biologists.com

hermetia illucens

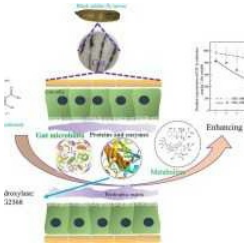
25/06/2024

The Effect of Supplementation of Fish Protein Hydrolysate to the BSF-Based Aquafeed on the Growth, Survival, Fatty Acids, and Histopathology of Juvenile Lobster (Panulirus ornatus) - Saputra ...

The present study aims to evaluate the effect of liquid fish protein hydrolysate (FPH) following fishmeal substitution with full-fat and defatted BSF (black soldier fly, Hermetia illucens) meal in th...

onlinelibrary.wiley.com

hermetia illucens



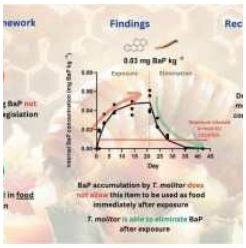
22/06/2024

The underlying mechanisms of oxytetracycline degradation mediated by gut microb... metabolites .. metabolites ...

Hermetia illucens larvae can enhance the degradation of oxytetracycline (OTC) through its biotransformation. However, the underlying mechanisms ...

www.sciencedirect.com

hermetia illucens



21/06/2024

Edible insects: Understanding benzo(a)pyrene toxicokinetics in yellow mealworm... sustainable c. sustainable c...

The global interest in edible insects as sustainable protein sources raises concerns about the bioaccumulation of contaminants, including polycyclic a...

www.sciencedirect.com

tenebrio molitor

20/06/2024

Dietary protein level influences growth, adult emergence, and susceptibility to bacterial infection in Hermetia ...

Abstract The larvae of the black soldier fly (BSFL), Hermetia illucens L. (Diptera: Stratiomyidae), are grown on diverse residual organic matter ...

brill.com

hermetia illucens

19/06/2024

Effect of rosemary (Rosmarinus officinalis) supplement on the growth characteristics and larval metabolism ...

Abstract The black soldier fly (BSF), Hermetia illucens. L (Diptera: Stratiomyidae), is often harnessed to transform organic waste into nutrient-rich ...

brill.com

hermetia illucens

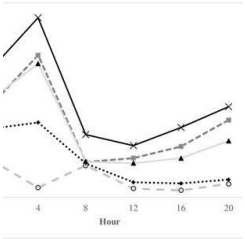
18/06/2024

Bacillus thuringiensis serovar morrisoni biovar tenebrionis impact and persistence in Tenebrio molitor larvae. ...

Abstract The yellow mealworm (Tenebrio molitor L.; Coleoptera: Tenebrionidae) has been proposed during the last decade as a suitable insect species ...

brill.com

tenebrio molitor



17/06/2024

Acceptance and forage utilization responses of steers consuming low-quality forage and supplemented black ...

Insect protein, especially black soldier fly larvae (BSFL), is gaining traction and support as animal feed; accordingly, it is important to conduct ...

academic.oup.com

hermetia illucens

13/06/2024

Preservation of agri-food byproducts by acidification and fermentation in black soldier f... bioconversion ... bioconversion ...

Maintaining a consistent supply of feedstock for efficient bioconversion of black soldier fly larvae (BSFL) presents challenges due to the fl...

www.sciencedirect.com

hermetia illucens

13/06/2024

Safety and transfer of veterinary drugs from substrate to black soldier fly larvae - Dongen et al.

There is an increasing interest in edible insects in Europe for feed and food purposes. Quantitative information on the transfer of chemical ...

www.sciencedirect.com

hermetia illucens

12/06/2024

Interaction effects of substrate fermentation and larval density on black soldier fly life-history traits ...

Abstract Agricultural by-products can serve as an excellent food source for edible insects, but their high-fibre properties can present challenges. ...

brill.com

hermetia illucens

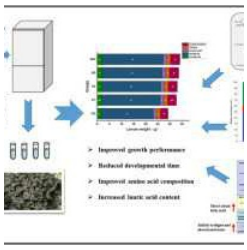
11/06/2024

Growth performance and chemical composition of tenebrio molitor larvae grown on substrates with different starch to fibre ratios - Fondevila et al.

Production of insects as animal protein source has increased recently but the information on nutrient requirements for optimal growth is still scarce. The effects of carbohydrate composition of the...

www.tandfonline.com

tenebrio molitor



07/06/2024

Improving the conversion efficiency of cyanobacterial biomass and the value of black soldier fly products ...

Cyanobacteria, as organic matter with a high protein content, have great potential as feed additives, and the use of black soldier fly larvae ...

www.sciencedirect.com

hermetia illucens

07/06/2024

Feed particle size matters for the larval growth of Alphitobius diaperinus (Panzer) but not for Tenebrio molitor L. (Coleoptera: Tenebrionidae) - Baliota et al.

Feed with a particle size below 650 µm optimized larval growth of Alphitobius diaperinus Feed with a particle size above 850 µm reduced the harvested biomass and development time of Alphitobius diap...

resjournals.onlinelibrary.wiley.com

hermetia illucens tenebrio molitor

05/06/2024

Biogas Digestate and Sewage Sludge as Suitable Feeds for Black Soldier Fly (Hermetia illucens) Larvae - Kofroňová ...

Hermetia illucens larvae can use organic wastes as a substrate, which makes them an interesting potential feed. However, waste may contain heavy ...

www.mdpi.com

hermetia illucens

02/06/2024

Growth performance and nutritional profile of Tenebrio molitor raised on a diet composed of livestock feedstuff - Cho et al.

Edible insects such as the mealworm (Tenebrio molitor) are emerging as an alternative animal protein resource to meet the needs of a growing global population. However, despite the successful mass pr...

onlinelibrary.wiley.com

tenebrio molitor

Product - media

Sources : mainstream media, regulatory sources, institutionnal, company,..

31/07/2024

Insects March Forward in Food and Feed

... from agriculture and even food waste, upping their green ... at converting food to protein – the Food and Agriculture ... global malnutrition ...

food.einnews.com

hermetia illucens | tenebrio molitor

31/07/2024

Insects-for-feed production in Africa

The number of insect farms is expanding in Africa, however there are still several barriers holding back the production. The right approach is ...

www.allaboutfeed.net

26/07/2024

Making a meal of it: how mealworms and insect protein will change the world

In our latest episode of Lexicon, we discover the innovative world of edible insect protein farming with Ribozome.

interestingengineering.com

tenebrio molitor

15/07/2024

This factory is now the largest insect protein production site in the world

Completion of new phase strengthens Innovafeed's workforce, creating 40 new jobs in addition to the existing 170 positions. Continue reading

www.salmonbusiness.com

11/07/2024

Canadian City Opens Insect Farm To Create Livestock Feed

An insect farm that will create "sustainable" livestock feed is opening in the city of Saskatoon, Saskatchewan later this month. NRGene ...

www.planet-today.com

hermetia illucens

09/07/2024

Aquafeed.com | Insect protein enhances trout immunity performance and lowers mortality ...

South African insect company Maltento tested its high protein digest product in rainbow trout obtaining enhanced performance.

www.aquafeed.com

hermetia illucens

04/07/2024

Incorporating insect meal in piglet feeds

Insect meals fall under the category of concentrated protein sources, but their nutritional characteristics are poorly documented.

www.pig333.com

tenebrio molitor

04/07/2024

Guide on good labelling practices for insect-based feed

IPIFF Guide on good labelling practices for insect-based feed materials On Thursday 27 June, IPIFF unveiled its Guide on good labelling practices ...

ipiff.org

02/07/2024

IFC invests $2 million in Costa-Rican insect protein producer

The International Finance Corporation (IFC) has made a US$2 million initial investment in the insect-based animal feed producer ProNuvo. The ...

www.feedandadditive.com

hermetia illucens

13/06/2024

Nofima: Consumers distrust use of insects and microalgae in salmon feed

Food research institute Nofima has explained that consumers find the thought of using insects and microalgae in salmon feed hard to digest. According ...

www.feedandadditive.com

13/06/2024

Agroloop builds insect factory for animal feed in Hungary with WEDA

The German feeding technology specialist WEDA Dammann & Westerkamp is supplying the Hungarian insect producer Agroloop with feeding technologies ...

farmersreviewafrica.com

hermetia illucens

06/06/2024

Insect-based salmon feed receives Label Rouge endorsement

Thanks to cooperation in the Scottish aquaculture industry, Label Rouge-certified salmon can now be fed diets containing insect-derived ingre...

thefishsite.com

Product - articles

Sources : HAL, Pubmed, BASE, MDPI, F100Research, Jounal of Insects as Food and Feed, ...

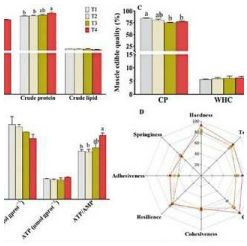
29/07/2024

Nano-Emulsified Black Soldier Fly Oil Concerning Performance Traits, Health and Immunity of Broilers - Dewanti ...

In the antibiotic-free era, traditional antibiotics have been suggested as alternatives to antibiotic-based growth promoters. Among the various ...

www.sciencedirect.com

hermetia illucens



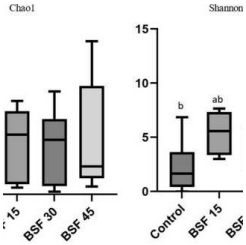
28/07/2024

Efficiently Substituting Dietary Fish Meal with Terrestrial Compound Protein Enhances Growth, Health, and ...

Inappropriate substitution of dietary fishmeal (FM) can adversely affect the growth, health, and metabolism of carnivorous fish species. To e...

www.mdpi.com

hermetia illucens



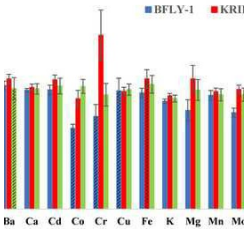
26/07/2024

Can black soldier fly meal in diets improve gut microbiota diversity, nutrient digestibility, and growth response ...

The present study assessed the growth and fish performance of juvenile red sea bream fed four isonitrogenous (46–48%) and isolipidic (15%) diets ...

link.springer.com

hermetia illucens



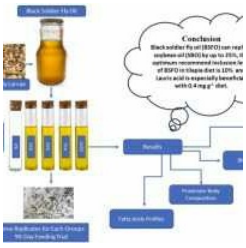
26/07/2024

Multi-Elemental Analysis of Edible Insects, Scorpions, and Tarantulas from French (Online) Market and Human ...

Edible insects are becoming increasingly popular as protein alternatives to traditional animal-based products. As such, information on their ...

www.mdpi.com

hermetia illucens tenebrio molitor



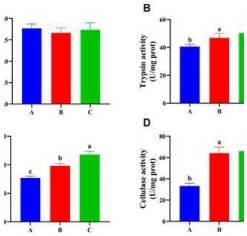
26/07/2024

Black soldier fly oil-based diets enriched in lauric acid enhance growth, hematological indices, and fatty ...

A 90-day trial was conducted to investigate the effect of a diet containing Black Soldier Fly Oil (BSFO) on performance, feed efficiency, hem...

www.sciencedirect.com

hermetia illucens



20/07/2024

Effects of Substituting Tenebrio molitor and Elodea nuttallii as Feed on Growth, Flesh Quality and Intestinal ...

This study aimed to evaluate the impact of substituting a portion of feed with Tenebrio molitor (TM) and Elodea nuttallii (EN) on crayfish culture. ...

www.mdpi.com

tenebrio molitor

18/07/2024

The Allergen Profile of Two Edible Insect Species—Acheta domesticus and Hermetia illucens - Karnaneedi et al.

This study identifies proteins in edible insect-based food products derived from cricket (Acheta domesticus) and black soldier fly larvae (Hermetia illucens) that can cause allergic reactions in cons...

onlinelibrary.wiley.com

hermetia illucens

18/07/2024

From traditional to industrial use of insects as feed: a review - van Huis et al.

Abstract Insects are part of the natural diet of fish and poultry species and to a lesser extent of pigs, dogs and cats. In traditional farming, ...

brill.com

hermetia illucens

16/07/2024

Exploring the suitability of Hermetia illucens meal in Clarias magur catfish: effect on growth, physiology ...

Abstract The effect of substituting Hermetia illucens (HI) meal for fish meal (FM) on the growth performance, survival rate, feed utilization, ...

brill.com

hermetia illucens

16/07/2024

Evaluation of black soldier fly larvae and protease supplementation of Lohmann Brown-lite laying hens performan... ... ...

Abstract Feed costs represent up to 60-70% of the total cost of poultry production, with protein sources being the most expensive feed component. ...

brill.com

hermetia illucens

14/07/2024

A meta-analysis of the meat physicochemical parameters of broiler chickens fed insect-based diet - Malematja et al.

A total of 23 studies were identified in a literature search performed in the Scopus, Science Direct and Google Scholar databases for meta-analysis. The criteria used include studies that were publis...

onlinelibrary.wiley.com

hermetia illucens tenebrio molitor

10/07/2024

The effects of nutritional composition of black soldier fly (Hermetia ilucens) larvae reared on vegetable ...

Context. Black soldier fly larvae are a promising alternative ingredient of poultry feed. They might be able to replace soybean and fishmeal ...

www.publish.csiro.au

hermetia illucens

03/07/2024

Dehydrated and live black soldier fly larvae as environmental enrichment in indigenous slow-growing chickens: ...

The demand for sustainable and ethically farmed animal products is on the rise as consumers become more environmentally and animal welfare conscious. ...

www.sciencedirect.com

hermetia illucens

03/07/2024

Does the processing of black soldier fly larvae meal affect the amino acid solubility in Atlantic salmon (Salmo ...

Abstract The present work aimed to evaluate protein and amino acid (AA) digestibility/solubility of different black soldier fly larvae (BSFL) ...

brill.com

hermetia illucens

01/07/2024

Supplementing broiler diets with black soldier fly (Hermetia illucens) as a protein source: Performance, carcass traits, viscera organ, and economic perspectives - Permana et al.

Permana, I. G., Suci, D. M., Yuwono, A. S., Firdaus, Y., Mawarni, S. R., & Rosmalia, A. (2024). Supplementing broiler diets with black soldier fly (Hermetia illucens) as a protein source: Performance, carcass traits, viscera organ, and economic ...

www.advetresearch.com

hermetia illucens

29/06/2024

Bioaccessibility of trace elements and Fe and Al endogenic nanoparticles in farmed insects: Pursuing quality ...

This study investigated the in vitro bioaccessibility of aluminum, copper, iron, manganese, lead, selenium, and zinc in three important species ...

www.sciencedirect.com

tenebrio molitor

28/06/2024

Substitution of soybean meal for yellow mealworm meal in the diet of slow-growing chickens p... comparable ... comparable ...

1. This study investigated the effects of incorporating yellow mealworm (Tenebrio molitor) larval meal as a partial and/or complete substitute ...

www.tandfonline.com

tenebrio molitor

28/06/2024

Batch-to batch variation in nutrient digestibility of black soldier fly larvae meals in rainbow trout - Oddon ...

Abstract The aim of this study was to evaluate the apparent digestibility coefficients (ADCs) of four batches of black soldier fly (BSF) meal, ...

brill.com

hermetia illucens

25/06/2024

Black soldier fly, mealworm and superworm: chemical composition and comparative effect on broiler growth- Vasilopoulos et al.

Insects and their larvae have attracted attention as a sustainable alternative to traditional commodities in animal feeds. There are currently eight authorised insect species, where most of the res...

www.tandfonline.com

hermetia illucens | tenebrio molitor

16/06/2024

Comparison of volatile compound profiles derived from various livestock protein alternatives includi... edi... edi...

In this study, the distinctive chemical fingerprints that contribute to the flavor characteristics of various protein materials, such as insects, ...

www.sciencedirect.com

tenebrio molitor

14/06/2024

Effect of replacing fish meal with black soldier fly larvae meal on growth performance and economic efficiency of Nile tilapia - Ouko et al.

Ouko, K. O. ., Mboya, J. B., Mukhebi, A. W., Obiero, K. O., Ogello, E. O., Munguti, J. M., & Tanga, C. M. (2024). Effect of replacing fish meal with black soldier fly larvae meal on growth performance and economic efficiency of Nile tilapia. ...

www.f2ffoundation.org

hermetia illucens

14/06/2024

Prospects of using insects as alternative protein sources in broiler diets. Lee et al.

Abstract Insects are garnering attention as promising protein sources for broiler diets, presenting nutritional and environmental benefits comparable ...

brill.com

hermetia illucens | tenebrio molitor

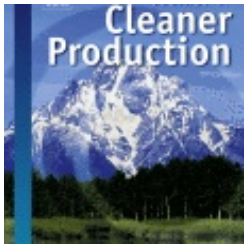
14/06/2024

Growth, nutrient uptake, blood metabolites and bone properties in broilers consuming feed with mineral-enriched ...

Abstract The recycling of minerals is crucial for the future circular agriculture. Black soldier fly larvae (BSFL) can accumulate minerals in ...

brill.com

hermetia illucens



13/06/2024

Towards circularity in aquaculture systems: Environmental impact of Hermetia illucens meal inclusion in diets ...

In advancing towards more sustainable aquaculture, the inclusion of insect meals in aquafeeds has significant potential to increase circularity ...

www.sciencedirect.com

hermetia illucens

11/06/2024

Dietary inclusion of insect oil: Impact on growth, nutrient utilisation, lipid metabolism, antioxidant and ...

In this study, we investigated the black soldier fly (Hermetia illucens) larvae oil (IO) as replacement of fish oil and vegetable oil in the ...

www.sciencedirect.com

hermetia illucens

10/06/2024

Intestinal Taste Receptor Expression and Its Implications for Health: An Integrative Analysis in Female Rats after Chronic Insect Supplementation - Segú et al.

Taste receptors are found in the gastrointestinal tract, where they are susceptible to dietary modulation, a key point that is crucial for diet-related responses. Insects are sustainable and good-quality protein sources. This study analyzed ...

pubs.acs.org

tenebrio molitor

07/06/2024

Biosafety assessment of laying hens fed different treatments of black soldier flies (Hermetia illucens) under ...

The black soldier fly (BSF, Hermetia illucens) is a resource insect that can utilize livestock and poultry feces. However, BSFs may also increase ...

www.sciencedirect.com

hermetia illucens

05/06/2024

Effects of Defatted and Hydrolyzed Black Soldier Fly Larvae Meal as an Alternative Fish Meal in Weaning Pigs ...

In Experiment 1, a total of eighteen crossbred ([Landrace × Yorkshire] × Duroc) barrows with an initial body weight of 6.74 ± 0.68 kg were randomly ...

www.mdpi.com

04/06/2024

Structure information analysis and relative content determination of protein and chitin from yellow mealworm ...

Insect protein extract is one of the high-quality protein sources and is frequently viewed as a potential nutrition alternative. However, a more ...

www.sciencedirect.com

tenebrio molitor

04/06/2024

Full article: Effects of yellow mealworm (Tenebrio molitor) larvae meal on the growth performance, serum biochemical parameters and caecal metabolome in broiler chickens - Jiang et al.

The goal of this study was to evaluate the effects of Tenebrio molitor (TM) larvae meal on the growth performance, serum biochemical parameters and caecal metabolome of broiler chickens. A total of...

www.tandfonline.com

hermetia illucens tenebrio molitor

03/06/2024

Application evaluation of black soldier fly (Hermetia illucens) larvae oil in shrimp feed: Effects on growth ...

Recently, the global supply shortage of fish oil (FO) has resulted in rapid price increases, and aquatic feed is the largest consumption of FO. ...

www.sciencedirect.com

hermetia illucens

01/06/2024

Broiler growth performance and carcass production as affected by feeding larvae of the black soldier fly (Hermetia illucens) - Matheus et al.

Authors Abstract Black soldier fly larvae meal (BSFLM) may substitute soy bean meal in chicken diets at cheap cost. The feed intake, growth performance, and carcass ch...

journals.iapaar.com

hermetia illucens

Industrials applications - media

Sources : mainstream media, regulatory sources, institutionnal, company,..

04/07/2024

Aquafeed.com | Highlights from the 5th Insects to Feed the World 2024 conference ...

The next IFW will be held in Turin, Italy, in 2026 and AFFIA will be hosting the next annual Asian Insect Industry & Research Forum in 2025.

www.aquafeed.com

01/07/2024

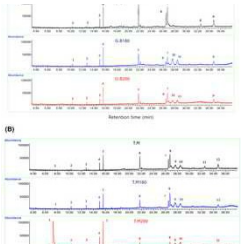
IPIFF General Assembly Meeting 27 June 2024 – International Platform of Insects for Food and Feed, Brussels

IPIFF General Assembly Meeting 27 June 2024 On Thursday 27 June 2024, the International Platform of Insects for Food and Feed (IPIFF) held its ...

ipiff.org

Industrials applications - articles

Sources : HAL, Pubmed, BASE, MDPI, F100Research, Jounal of Insects as Food and Feed, ...



29/07/2024

Improvement of properties and olfactory attributes of isolated protein from edible insects by roast... Ganbat .. Ganbat ...

The characteristics of proteins extracted from two kinds of edible insects (Gryllus Bimaculatus and Tenebrio Molitor, for G.B and T.M, respectively) ...

link.springer.com

hermetia illucens | tenebrio molitor

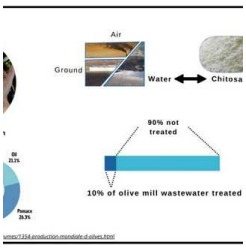
28/07/2024

Frass from Tenebrio molitor as alternative to NPK-mineral fertilization: results from a germination test and ...

The use of alternative fertilizers instead of conventional mineral fertilizers, such as the insectexcreta (frass) is a new sustainable agronomic ...

www.sciencedirect.com

tenebrio molitor



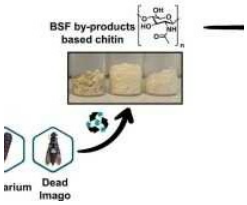
25/07/2024

Exploring the potential use of chitosan derived from Hermetia illucens waste for olive oil mill wastewater ...

In this study, we aimed to explore a potential chitinous source, specifically the prepupal cases, which considered as a waste of Hermetia illucens. ...

link.springer.com

hermetia illucens



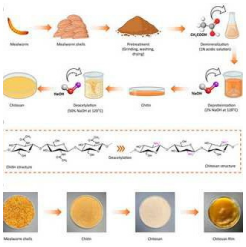
25/07/2024

Turning black soldier fly rearing by-products into valuable materials: Valorisation through chitin and chitin ...

The industry of insect-based proteins as feed and food products has been encountering a huge development since the last decade, and industrial-scale f...

www.sciencedirect.com

hermetia illucens



25/07/2024

Chitosan Extracted from the Biomass of Tenebrio molitor Larvae as a Sustainable Packaging Film - Mwita et al.

Waste from non-degradable packaging materials poses a serious environmental risk and has led to interest in developing sustainable bio-based ...

www.mdpi.com

tenebrio molitor

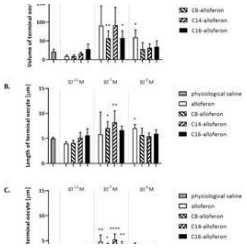
25/07/2024

A unique combination of natural fatty acids from Hermetia illucens fly larvae fat effectively combat virulence factors and biofilms of MDR hypervirulent mucoviscus Klebsiella pneumoniae strains ...

1 Introduction Misuse and overuse of antibiotics have led to the emergence of drug-resistant bacteria, which is a major threat to global health. In fact, WHO has declared that “Antimicrobial resistance (AMR)” is one of the top global public ...

www.frontiersin.org

hermetia illucens



24/07/2024

Effects of alloferon and its analogues on reproduction and development of the Tenebrio molitor be... Wa... Wa...

As the most numerous group of animals on Earth, insects are found in almost every ecosystem. Their useful role in the environment is priceless; ...

www.nature.com

tenebrio molitor

23/07/2024

A study on the differences in edible insect taxonomy groups habitually consumed by people in different regions ...

Abstract A combination of questionnaires and field research was employed to investigate the types, characteristics, preferences, and socio-cultural ...

brill.com

23/07/2024

Foam-mat drying of black soldier fly larvae: optimisation of foaming, drying kinetics, and powder characteristics ...

Abstract Desirable conditions for foaming, drying kinetics, and characteristics of black soldier fly larvae (BSFL) powders were studied. Pre-pupal ...

brill.com

hermetia illucens

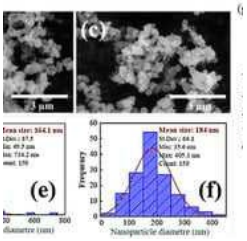
19/07/2024

Green Solvent-Based Extraction of Lipids and Proteins from Tenebrio molitor: Extraction Efficiency and Cytotoxic ...

This study compared Tenebrio molitor extracts obtained using various solvents, including ethyl acetate (EtOAc), ethanol (EtOH), isopropanol (IPA) ...

www.kosfaj.org

tenebrio molitor



17/07/2024

Impact of Iron Oxide on Anaerobic Digestion of Frass in Biogas and Methanogenic Archaeal Communities' Analysis ...

With the increasing prominence of the global energy problem, socioeconomic activities have been seriously affected. Biofuels, as a renewable ...

www.mdpi.com

hermetia illucens

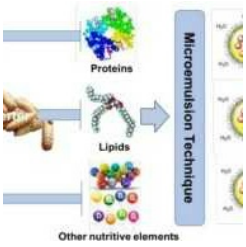
16/07/2024

Valorisation of Tenebrio molitor beetles: enzymes-based bioprocessing to obtain a highly digestible protein ...

Abstract The biological valorisation of edible insects is an eco-saving approach that may increase their use for food and feeding purposes. Beetles ...

brill.com

tenebrio molitor



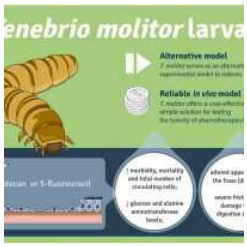
15/07/2024

Formulation and characterization of microemulsions utilizing oil extracted from black soldier fly larvae - ...

Black Soldier Fly Larvae (BSFL) play an important role in the ecological protection, nutrition security and circular economy, as they consume ...

www.sciencedirect.com

hermetia illucens



15/07/2024

Tenebrio molitor as a new alternative model for the investigation of chemotherapy-induced intestinal toxicity ...

Alternative animal models have become increasingly necessary due to legal regulations aimed at reducing the use of laboratory animals. Invertebrates a...

www.sciencedirect.com

tenebrio molitor

14/07/2024

Assessing black soldier fly pupation and survival in lunar regolith simulant: Implications for sustainable ...

Bioregenerative life-support systems (BLSSs) will be crucial for extended space missions and extraterrestrial habitats. The black soldier fly, ...

www.sciencedirect.com

hermetia illucens

13/07/2024

Anti-obesity and immunomodulatory effects of oil and fermented extract dried from Tenebrio molitor larvae on aged obese mice - Mun et al.

Preventing disease and maintaining the health of the elderly are crucial goals for an aging population, with obesity and immune function restoration being of paramount importance. Obesity, particul...

www.tandfonline.com

tenebrio molitor

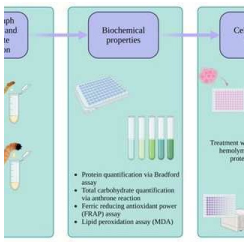
10/07/2024

Optimal supply chain design of biodiesel production using black soldier fly larvae oil as feedstock - Aguilar-Murguía et al.

Biodiesel is one of the most produced biofuels worldwide; however, all existing plants base their production on vegetable or animal oils. These raw materials, whose availability is limited due to t...

www.tandfonline.com

hermetia illucens



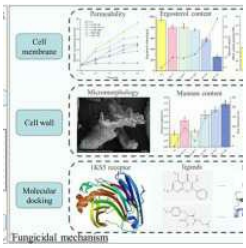
08/07/2024

Insects as a Prospective Source of Biologically Active Molecules and Pharmaceuticals - Biochemical Properties ...

Insects are of great interest as novel sources of alternative proteins and biologically active compounds, primarily anticancer agents. Protein-rich ...

www.mdpi.com

tenebrio molitor



05/07/2024

Propolis extract and Hermetia illucens larval proteins synergistically inhibit the growth of Aspergillus niger ...

The individual and combined inhibitory activities of propolis extract (PE) and Hermetia illucens larval proteins (Black soldier fly larvae proteins) (...

www.sciencedirect.com

hermetia illucens

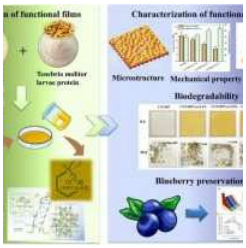
04/07/2024

Drivers of genomic diversity and phenotypic development in early phases of domestication in Hermetia illucens - Hull et al.

Random drift rather than selection is the primary evolutionary force driving genomic and phenotypic variation in BSF populations during early phases of domestication. Functional trade-offs between p...

resjournals.onlinelibrary.wiley.com

hermetia illucens



04/07/2024

Preparation of chitosan/Tenebrio molitor larvae protein/curcumin active packaging film and its application ...

With growing concerns about postharvest spoilage of fruits, higher requirements have been placed on high-performance and sustainable active packaging ...

www.sciencedirect.com

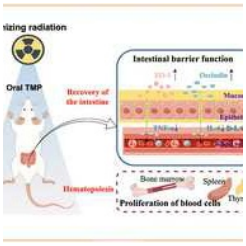
tenebrio molitor

01/07/2024

Effect of killing and technological processing on microbiological quality of edible insects - Škvorová et al.

This study aimed to assess the effect of killing (blanching and freezing) followed by culinary processing on the microbiological quality of Tenebrio molitor and Gryllus assimilis. These insects were subjected to starvation before killing, which ...

office2.jmbfs.org



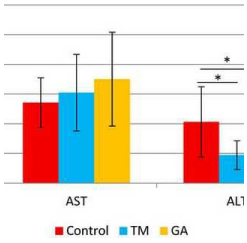
01/07/2024

Study on the mechanism of mitigating radiation damage by improving the hematopoietic system and intestinal ...

Research on plant and animal peptides has garnered significant attention, but there is a lack of studies on the functional properties of Tenebrio ...

pubs.rsc.org

tenebrio molitor



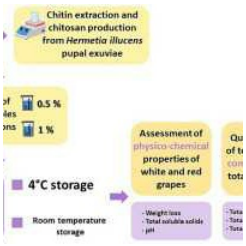
01/07/2024

Effect of Diets with the Addition of Edible Insects on the Development of Atherosclerotic Lesions in ApoE/LDLR-/- ...

Foods enriched with insects can potentially prevent several health disorders, including cardiovascular diseases, by reducing inflammation and ...

www.mdpi.com

tenebrio molitor



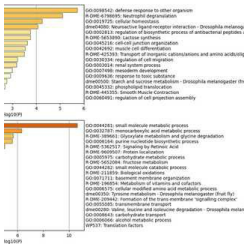
30/06/2024

Insect-derived chitosan, a biopolymer for the increased shelf life of white and red grapes - Guarnieri et al.

Post-harvest water loss and microbial infections are the root cause of the rapid deterioration of fresh fruit after the picking process, with ...

www.sciencedirect.com

hermetia illucens



29/06/2024

High expression of serine protease, Brachyurin in the posterior midgut of black soldier fly (Hermetia illucens) ...

Objective Livestock droppings cause some environmental problems, but they have the potential to be used as effective biomass resources. The black ...

link.springer.com

hermetia illucens

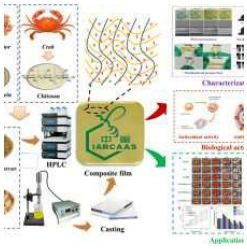
29/06/2024

The potential of chitin and chitosan from dead black soldier fly (BSF) (Hermetia illucens) for biodegradable ...

The packaging efficiency is the key for food safety and protection. Petroleum-based polymer polyethylene, are frequently utilized in packaging ...

www.sciencedirect.com

hermetia illucens



28/06/2024

Propolis ethanol extract functionalized chitosan/Tenebrio molitor larvae protein film for sustainable active ...

The application of novel insect proteins as future food resources in the food field has attracted more and more attention. In this study, a b...

www.sciencedirect.com

tenebrio molitor

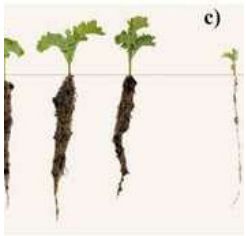
28/06/2024

Observation of mating behavior using marked flies of black soldier fly (Hermetia illucens) under sunlight ...

Abstract In recent years, various studies have investigated the growth of the larval stage of the black soldier fly (BSF). Nevertheless, the ...

brill.com

hermetia illucens



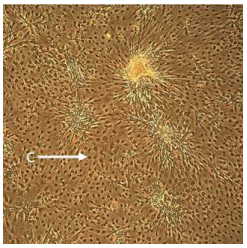
27/06/2024

Effects of Using Thermocomposted Frass from Black Soldier Fly Larvae as a Germination Substrate on the Phy...

Frass generated during the production of black soldier fly larvae is attracting the interest of scientists and horticultural producers because ...

www.mdpi.com

hermetia illucens



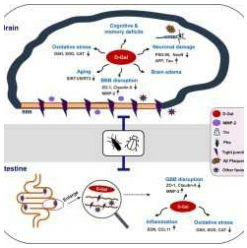
27/06/2024

A cell line derived from the black soldier fly, Hermetia illucens (Diptera: Stratiomyidae) - Saathoff et al.

Insect cell lines are effective tools used in industry and academia. For example, they are used in screening potential insecticides, in making ...

link.springer.com

hermetia illucens



25/06/2024

Protective effects of Tenebrio molitor and Protaetia brevitarsis seulensis extracts on aging: Regulation of ...

Insects are considered as a potentially eco-friendly, highly nutritious, and protein-rich food source. We evaluated the effects of Tenebrio molitor (T...

www.sciencedirect.com

tenebrio molitor

22/06/2024

Whole-genome sequencing of two captive black soldier fly populations: Implications for commer... production .. production ...

Black soldier fly (BSF; Hermetia illucens) is a promising insect species for food and feed production as its larvae can convert different organic ...

www.sciencedirect.com

hermetia illucens

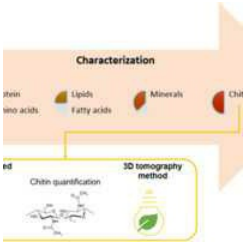
21/06/2024

Gut microbiome in black soldier fly (Hermetia illucens L.) larvae: symbiosis, function, and application - Zhang et al.

The black soldier fly (Hermetia illucens L.) has attracted much interest due to its capacity to grow in habitats abundant with organic waste. The insect's ability to feed on decaying matter and its high tolerance for microorganisms make it an ...

www.frontiersin.org

hermetia illucens



21/06/2024

Characterization of all life stages of Tenebrio molitor: Envisioning innovative applications for this edible ...

The human food security is unavoidably dependent on exploring novel nutritional sources, such as edible insects. However, insects farming needs ...

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tenebrio molitor

18/06/2024

Stimulating the biofilm formation of Bacillus populations to mitigate soil antibiotic resistome during insect ...

Antibiotic resistance in soil introduced by organic fertilizer application pose a globally recognized threat to human health. Insect organic ...

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hermetia illucens

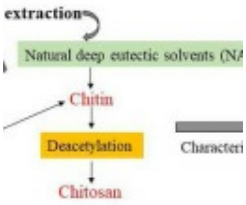
15/06/2024

Valorization of Organic Wastes by Biotransformation with Black Soldier Fly Larvae: Prospecting of Agricultural Fertilizers - Casallas Martin et al.

Abstract Black soldier fly (BSF) larvae have been studied for the side-products obtained through the biotransformation of organic wastes. During the study, frass, which is a mixture of larval waste and non-degraded residues, was evaluated ...

www.cetjournal.it

hermetia illucens



13/06/2024

Influence of synthesis approach and formulation on the physicochemical properties of chitin and chitosan from ...

In recent years, numerous studies have emerged on the application of biosorbents for dyes removal from wastewater. Chitosan, a derivative of ...

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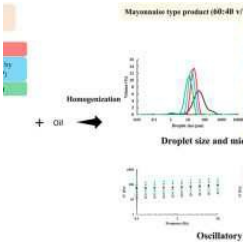

10/06/2024

Egg-free mayonnaise-type emulsions stabilized with proteins derived from the larvae of Tenebrio molitor - ...

In view of demanding alternative protein sources to replace the conventional ones, egg-yolk free mayonnaise-type emulsions were made from protein ...

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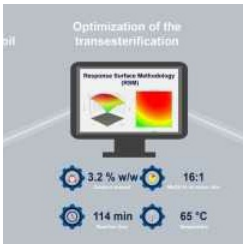
tenebrio molitor



08/06/2024

Insect oil to fuel: Optimizing biodiesel production from mealworm (Tenebrio molitor) oil usi... surface ... surface ...

In light of the rising global demand for sustainable fuel alternatives, this research investigates the potentiality of applying mealworm oil ...

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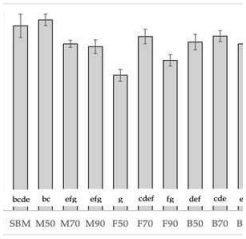
hermetia illucens tenebrio molitor



06/06/2024

The Effects of Slaughter Methods and Drying Temperatures on the Protein Hydrolysis of Black Soldier Fly Larvae ...

In recent years, the potential of insects as a sustainable protein alternative to feed the growing world population has been explored. Differences ...

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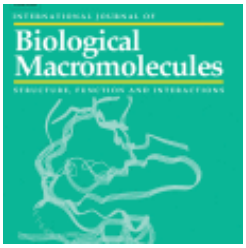
hermetia illucens



04/06/2024

Changes in physicochemical, structural and functional properties, and ly... during the unfolding ... during the unfolding ...

The changes of physicochemical, structural and functional properties and the lysinoalanine (LAL) formation during the unfolding and refolding ...

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hermetia illucens

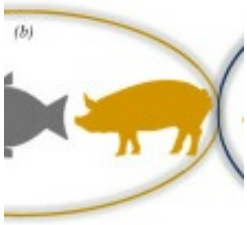
02/06/2024

Black soldier fly (Hermetia illucens L.): A potential small mighty giant in the field of cosmeceuticals - Lai-Foenander et al.

Background and Aims Natural products are widely used in the pharmaceutical and cosmetics industries due to their high-value bioactive compounds, which make for “greener” and more environmentally fri...

onlinelibrary.wiley.com

hermetia illucens



01/06/2024

Cross-country evidence of consumers’ perception of food from animals fed on insects in DR Congo, Mali, and ...

Insects can represent a valuable and cost effective source of animal feed in Africa. Recently, the interest in incorporating black-soldier fly ...

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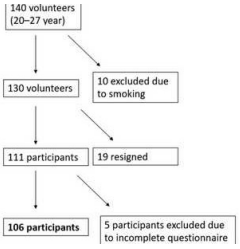

01/06/2024

Acceptance of Muffins (Sweet and Savory) with the Addition of T. molitor, A. diaperinus, A. domesticus, R. ...

The aim of the study was to analyze the acceptance of muffins containing a 15% addition of powder from four edible insect species (Alphitobius ...

www.mdpi.com

tenebrio molitor

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- This factory is now the largest insect protein production site in the world
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- Aquafeed.com | Insect protein enhances trout immunity performance and lowers mortality
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- IFC invests $2 million in Costa-Rican insect protein producer
- Nofima: Consumers distrust use of insects and microalgae in salmon feed
- Agroloop builds insect factory for animal feed in Hungary with WEDA
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- Can black soldier fly meal in diets improve gut microbiota diversity, nutrient digestibility, and growth response of marine fish? A study on red sea bream Pagrus major - Oktay et al.
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- Effects of Substituting Tenebrio molitor and Elodea nuttallii as Feed on Growth, Flesh Quality and Intestinal Microbiota of Red Swamp Crayfish (Procambarus clarkii) - Li et al.
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- Exploring the suitability of Hermetia illucens meal in Clarias magur catfish: effect on growth, physiology and flesh quality - Thomas et al.
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- Aquafeed.com | Highlights from the 5th Insects to Feed the World 2024 conference
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