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

Articles parus entre le 01/07/22 au 26/09/22

Cette newsletter est le fruit d'une veille réalisée en partenariat entre la Direction pour la Science Ouverte (DipSO) et le collectif de recherche sur l'entomoconversion.

Le périmètre visé :

- **Europe/France**
- **Axes thématiques** : Focus sur 2 insectes (Tenebrio molitor et Hermetia Illucens) , les substrats (biodéchets organiques et coproduits agricoles), les usages industriels et les produits (farine de protéine et fumier d'insecte)
- **Types d'informations** : articles scientifiques, informations sur projets en cours et terminées, documents réglementaires, Appels à manifestation d'intérêts, infos sur le secteur privé.

A noter: les informations sélectionnées ne présentent pas la production INRAE ni sa position officielle.

AAP AO AMI

Sources : ANR, Horizon Europe, BPI...

14/09/2022

Le programme ANR COW : l'ouverture d'un front de recherches inédit sur le travail animal | Natures Sciences ...

Natures Sciences Sociétés, traite de tous les aspects de l interface homme-nature, la science faisant elle-même partie de cette interface

www.nss-journal.org

02/08/2022

Evolution de la chémoréception et transition(s) terrestre-aquatique chez les coléoptères Adephag... ANR | ANR

Les sens chimiques (goût et odorat) jouent un rôle clé dans l'adaptation des espèces à de nouvelles niches écologiques, en particulier chez les ...

anr.fr

27/07/2022

4-year Research Group in #entomology within Centre Pasteur Cameroun □□□...

4-year Research Group in #entomology within Centre Pasteur Cameroun □□□ #PasteurNetwork https://t.co/CmspJHynmj

twitter.com

09/07/2022

3e appel à projets insectes pollinisateurs sauvages en Val d'Oise - Environnement - Valdoise - Valdoise

«Le Val d'Oise est un territoire qui doit être préservé, et le Département est particulièrement sensible à la protection de l'environnement. ...

www.valdoise.fr

07/07/2022

IRN INSECTINOV-Sud : Innover pour produire et valoriser les insectes et leurs productions

IRN INSECTINOV-Sud : Innover pour produire et valoriser les insectes et leurs productions Nathalie.Billo... jeu 07/07/2022 - 23:47 ...

www.ird.fr

Informations non scientifiques

Types de sources : presse généralistes, spécialisées, réglementations, infos institutionnelles, ...

22/09/2022

FreezeM and Hermetia partner to optimize insect protein production

ISRAEL— Insect biology specialist FreezeM Cryogenics Ltd and Insect industry pioneer, Hermetia Baruth GmbH have set up a strategic alliance for ...

www.foodbusinessafrica.com

22/09/2022

Oman Flour Mills mulls foray into insect farming for animal feed

Oman Flour Mills (OFM), the nation's biggest food producer, is eyeing investments in cutting-edge sectors of the food economy as it seeks to ...

www.omanobserver.om

21/09/2022

Ugandan Farmers Embrace Maggots as Solution to Fertilizer Shortage

Black soldier fly larvae are becoming a hot commodity during a time of crisis for farmers. The post Ugandan Farmers Embrace Maggots as Solution ...

modernfarmer.com

21/09/2022

Insect protein producer Nutrition Technologies closes US$20m equity funding

SINGAPORE— Nutrition Technologies, a Singapore-based agri-biotech company which produces animal feed from black soldier fly maggots, has raised ...

www.foodbusinessafrica.com

21/09/2022

Innovafeed secures $250m in Series D funding to accelerate international expansion

French insect protein company, Innovafeed, has become the most successful in the sector in terms of attracting capital, having just raised US$250m ...

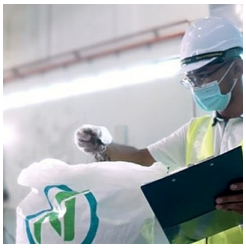
www.feednavigator.com

21/09/2022

Brief: French insect farm InnovaFeed scoops up $250m led by Qatar, plans expansion to US

The insect protein startup plans to operate 10 facilities that farm insects for protein by the end of the decade, starting wtih the US. The post ...

agfundernews.com



21/09/2022

Industrial insect producer Nutrition Technologies concludes $20 million equity round

Asia-based Nutrition Technologies, one of the first industrial insect companies in the region, has closed a $20 million equity round as it prepares ...

www.efeedlink.com

20/09/2022

Brief: Nutrition Technologies lands $20m to expand insect-protein operation across Asia - AgFunderNews

Brief: Nutrition Technologies lands $20m to expand insect-protein operation across Asia AgFunderNews

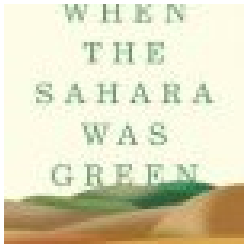
agfundernews.com

20/09/2022

Nutrition Technologies to propel insect protein innovation after US$20M equity round

--- Malaysia-based Nutrition Technologies, a manufacturer of animal feed ingredients and biofertilizers and “the first industrial insect company,” has ended its equity venture round with US$20 million investment. The... ...

www.nutritioninsight.com



20/09/2022

SUSTAINABLE AND EFFICIENT INSECT PRODUCTION FOR LIVESTOCK FEED THROUGH SELECTIVE BREE... (FLYGENE (FLYGENE)

DANIDA SUSTAINABLE AND EFFICIENT INSECT PRODUCTION FOR LIVESTOCK FEED THROUGH SELECTIVE BREEDING (FLYGENE) - 19. 2022

www.secheresse.info

20/09/2022

PTT arm leads insect protein firm Nutrition Technologies’s US$20M round

Singapore-based insect protein company Nutrition Technologies has announced the completion of a US$20 million equity funding round led by PTT ...

e27.co

15/09/2022

EU land-based shrimp farmers team with Protix, others on insect-based feed | IntraFish

Through the partnership, the groups are implementing insect meal in their specially developed land-based shrimp feeds for the first time in E...

www.intrafish.com

12/09/2022

Some scientists hope ground mealworm will provide healthier alternative to meat

BOSTON -- Some scientists are proposing mealworms as a ... of eating bugs. South Korean scientists decided to "cook up ...

science.einnews.com

12/09/2022

Dr. Lee-Anne Huber: What's all the buzz about this fly larvae meal?

Feed prices continue to rise in the swine industry. With the constant fluctuations and unpredictability, we always need to evaluating the potential ...

www.farms.com

12/09/2022

Les scientifiques ont trouvé des vers qui mangent le polystyrène et le digèrent - Demotivateur

Les scientifiques ont trouvé des vers qui mangent le polystyrène et le digèrent Demotivateur

www.demotivateur.fr

09/09/2022

Five players in the aquaculture sector team up on new shrimp feed

European based ingredient and technology suppliers, feed formulation experts and farmers have collaborated on the development and launch of a ...

www.feednavigator.com

08/09/2022

Ugandan farmers turn to the 'black soldier fly' for a greener, cheaper fertiliser

As the war in Ukraine continues to increase fertiliser prices worldwide, the larvae of the black soldier fly are helping smallholder farmers ...

www.dailymotion.com

07/09/2022

Aquafeed.com | New partnership unveils insect-based feed for land-based shrimp ...

Förde Garnelen, Aquafeed Germany, Protix, neomar and Crusta Nova have joined forces to launch a new feed for European land-based shrimp farms.

www.aquafeed.com

06/09/2022

Lotte Confectionery partners with Canada's Aspire Food on insect protein alternatives

Lotte Confectionery, a major Korean snacks and ice cream maker, said Tuesday it has signed an initial agreement with Canada's Aspire Food Group ...

www.koreatimes.co.kr

05/09/2022

FreezeM and Hermetia look to optimize insect protein production through neonate supply

FreezeM is partnering with Hermetia for co-production and distribution of suspended BSF neonates throughout Europe.

www.feednavigator.com

30/08/2022

Black soldier fly comes to the rescue of fish farmer

BY AGNES KINYUA an ABDP Fisheries Officer Sywan Urban Aquaculture Centre in Nyeri County was established in March 2018 for intensive and integrated ...

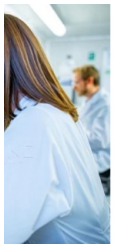
smartfarmerkenya.com

27/08/2022

Mealworm seasoning: Scientists explore creepy-crawly flavoring to satisfy meat cravings

Would you like some meaty, savory mealworm powder seasoning with your food? The post Mealworm seasoning: Scientists explore creepy-crawly flavoring ...

kyma.com



26/08/2022

Pet food insect protein producer buys land for new factory

To meet the rising demand in the European pet food market for insect protein, HiProMine has purchased land to build its second factory in Pol...

www.petfoodindustry.com

25/08/2022

Hexafrass fertiliser to help plants render aphids infertile

Hexafrass, a new insect-based fertiliser, has been proven to enable an immune system response in plants that can render aphids... The post Hexafrass ...

www.agriland.ie

25/08/2022

India's first insect farming startup Loopworm secures $3.4m seed round led by Omnivore, WaterBridge

Indian insect biotech startup Loopworm secures $3.4m seed round led by Omnivore and WaterBridge to scale up research and development and production. ...

agfundernews.com

23/08/2022

EU promotes 'yellow mealworm' as food substitute

The European Commission is facing backlash for a tweet promoting the consumption of yellow mealworm and other "novel foods."EU promotes eating ...

www.nexusnewsfeed.com

15/08/2022

The Netherlands: Turning insects into fertilizer, feed and oil

With a couple of trucks at a time waste streams are brought into Protix' production facility in Bergen op Zoom, the Netherlands. And, many larvae ...

www.hortidaily.com

12/08/2022

Fera Sciences opens US$1m insect feed research laboratory

UK— UK research organization Fera Science has opened a £1million (US$1.02 million) laboratory at its York Bioscience Campus (YBC) to study insect ...

www.foodbusinessafrica.com

12/08/2022

Startups in Thailand explore use of insects to produce animal feed

Startups in Thailand are focusing on insects to make animal feed, seeking to help alleviate increasing pressure on livestock farmers to move toward sustainability.

www.efeedlink.com

02/08/2022

Morrisons comes up with ‘carbon-neutral eggs’ laid by chickens fed on insects and food waste

As part of the supermarket chain’s drive to be directly supplied by net-zero emission farms by 2030, Morrisons has launched a new line of eggs ...

www.gg2.net

29/07/2022

Waste To Value! This Bengaluru-Based Startup Is Upcycling Food Waste By Black Soldier Fly Larvae

Established in 2019 by 2 IITians, 'Loopworm' is working in the 'Waste to Value' biotechnology space, primarily focused on upcycling food waste ...

thelogicalindian.com

29/07/2022

Permanent Link to Argentina trialing the use of black soldier fly as biodiesel feedstock

In Argentina, Clarin reports the Buenos Aires Ministry of Production, Science and Technological Innovation, the work cooperatives grouped ...

www.biofuelsdigest.com

27/07/2022

Insects as an alternative feed for cattle

Cultivating insects is becoming a popular avenue for farmers worldwide. Livestock farmers, in particular, have been raising insects to feed their ...

www.agriculture.com.ph

25/07/2022

Insect protein company receives investment

A Lithuanian company developing nutritious insect protein products has raised €3 million (around $4.4 million) in seed funding. Divaks produces ingredients using yellow mealworm, such as whole insect powder and insect fibre powder. The worms ...

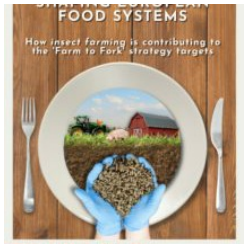
foodprocessing.com.au

24/07/2022

Mealworm beetles, a nutritious food source for livestock, poultry and aquatic animals

A group of Iranian researchers have developed a nutritious food product to serve as livestock inputs through the semi-industrial breeding of ...

ifpnews.com



20/07/2022

IPIFF annual conference: Shaping European Food Systems: How insect farming is contributing to the 'Farm to ...

The International Platform of Insects for Food and Feed (IPIFF) is pleased to invite you to its upcoming annual conference entitled ‘Shaping ...

ipiff.org

20/07/2022

Uganda: Smallholder Farmers Recruit Black Soldier Fly for Green Fertiliser

[IPS] Kampala & Kayunga -- The conflict in Ukraine has led to an increase in fertiliser prices in Uganda and neighbouring Kenya. Amidst the shortages, some farmers are shifting to a more sustainable way of enriching their soils using frass ...

allafrica.com

19/07/2022

Canadian university students get top prize in Mexico for black soldier fly larvae project

Two Quebec, Canada university students and a biologist have won top prize at an international event for a project that uses black soldier fly ...

www.efeedlink.com

15/07/2022

Lithuanian firm gets seed funding to develop mealworm protein insect ingredients for food industry

Divaks raised €3 million in seed funding to create yellow mealworm ingredients for meat alternative, sports nutrition, snack, confectionery, ...

www.nutritionaloutlook.com

15/07/2022

Mealworm receives positive assessment by EFSA, boosts insect consumption

Human insect consumption has received a boost as the lesser mealworm becomes the fourth insect to receive a positive assessment by the European ...

theaquaculturists.blogspot.com

08/07/2022

US mealworm producer prioritizing sustainable energy and zero-waste practices at its new facility

Beta Hatch, currently the largest producer of mealworms in North America, is flagging the sustainability of its production site at its flagship ...

www.feednavigator.com

08/07/2022

GAEC trains farmers in Black Soldier fly technology

The Biotechnology and Nuclear Agriculture Research Institute (BNARI) of the Ghana Atomic Energy Commission (GAEC) held a workshop to equip farmers ...

citinewsroom.com

07/07/2022

Cargill, Innovafeed extend partnership on insect-based feed

US — Cargill and Innovafeed have extended their partnership to develop and market insect meal to help aquafeed customers raise more sustainable ...

www.foodbusinessafrica.com

06/07/2022

Divaks gets €3m boost to introduce yellow mealworm to the bakery and snacks sectors

The Lithuanian food-tech startup has raised €3m in a second round of seed funding to develop its high-quality insect-derived ingredients, with ...

www.bakeryandsnacks.com

05/07/2022

Ÿnsect ready to ramp up lesser mealworm production across Europe

Human insect consumption – as a nutrient-rich and efficient means to support sustainability and meet climate change targets – has received another ...

gfmt.blogspot.com

05/07/2022

Europe's first registered 100% organic fertilizer produced by insects - FreshPlaza.com

Europe's first registered 100% organic fertilizer produced by insects FreshPlaza.com

www.freshplaza.com

04/07/2022

Safety of frozen and freeze-dried formulations of the lesser mealworm (Alphitobius diaperinus larva) as a ...

Following a request from the European Commission, the EFSA Panel on Nutrition, Novel Foods and Food Allergens (NDA) was asked to deliver an opinion ...

www.efsa.europa.eu

Publications scientifiques

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

25/09/2022

Sustainability, Vol. 14, Pages 12109: Mutual Influence between Polyvinyl Chloride (Micro)Plastics and Black ...

Due to the expansion in the global population, there is an increase in animal protein demand and waste generation. Currently, food waste derived ...

www.mdpi.com

23/09/2022

Evaluation of the fat oxidation quality of commercial Hermetia illucens meal

Hermetia illucens meal is one of the most promising alternatives to fishmeal and soymeal. Fat oxidation quality of these products is crucial, as it directly influences the palatability of feed, and health of animals consuming it. During this ...

dx.doi.org

23/09/2022

Nutritional Evaluation of Black Soldier Fly Frass as an Ingredient in Florida Pompano (Trachinotus carolinus L.) Diets

The aquaculture industry is in need of sustainable fish feed to reduce the use of expensive and environmentally invasive wild-caught fish currently fed to many carnivorous species. The black soldier fly (BSF) has become a popular sustainable ...

pubmed.ncbi.nlm.nih.gov

23/09/2022

Software-Based Process Simulation and Feasibility Assessment of Black Soldier Fly Larvae Fatty Acid Extraction and Fractionation

Black soldier flies have been studied as an alternative animal feed. On the other hand, they could be used to yield an abundance of fatty acids. Their omnivorous diet and low space requirements allow for the mass breeding of black soldier flies, ...

pubmed.ncbi.nlm.nih.gov

23/09/2022

Comparative study of two types of pre-extraction treatment (drying or non-drying) on physicochemical, structural and functional properties of extracted insect proteins from Tenebrio molitor l...

Microwave drying (MD) or freeze drying (FD) was commonly used as a drying treatment prior to the extraction of edible insect proteins. However, some quality defects (e.g., lipid oxidation or protein denaturation) were probably occurred via the ...

pubmed.ncbi.nlm.nih.gov

23/09/2022

Carob (Ceratonia siliqua) as Functional Feed Is Beneficial in Yellow Mealworm (Tenebrio molitor) Rearing: Evidence from Growth, Antioxidant Status and Cellular Responses

In terms of sustainability and circular economy, agricultural by-products may be efficiently reused in insects' rearing for high-quality protein sources in human diet and animal feeds. The present study aimed to explore whether the utilization ...

pubmed.ncbi.nlm.nih.gov

22/09/2022

Modulating the Fatty Acid Profiles of Hermetia illucens Larvae Fats by Dietary Enrichment with Different Oilseeds: A Sustainable Way for Future Use in Feed and Food

Edible insects such as the black soldier fly Hermetia illucens L. represent a potential and sustainable source of nutrients for food and feed due to their valuable nutritional composition, which can be modulated through dietary enrichment. The ...

pubmed.ncbi.nlm.nih.gov

22/09/2022

Rearing performance of black soldier fly (Hermetia illucens) on municipal biowaste in the outdoor ambient weather conditions of Pakistan and Indonesia

The availability and continuous supply of black soldier fly larvae (BSFL) is crucial for efficient operation of a BSF biowaste recycling facility. Its rearing performance was for the first time investigated in Pakistan under outdoor ambient ...

pubmed.ncbi.nlm.nih.gov

22/09/2022

Nutritional Composition of Black Soldier Fly Larvae (Hermetia illucens L.) and Its Potential Uses as Alternative Protein Sources in Animal Diets: A Review

The rapidly growing population has increased demand for protein quantities and, following a shortage of plant-based feed protein sources and the prohibition of animal-based feed protein, has forced the search for new sources of protein. Therefore, ...

pubmed.ncbi.nlm.nih.gov

22/09/2022

Bioconversion Potential of Agro-Industrial Byproducts by Tenebrio molitor-Long-Term Results

The aim of this study was to compare the growth performance, feed conversion ratio (FCR), and efficiency of ingested feed (ECI) by larvae of the Tenebrio molitor beetle. The growth and development potential of the yellow mealworm was evaluated ...

pubmed.ncbi.nlm.nih.gov

21/09/2022

Expedition Insects - An Interactive Book from the Smithsonian

Expedition Insects is a neat interactive book from the Smithsonian Science Education Center. The book was written to helps students in third ...

www.freetech4teachers.com

21/09/2022

Insects, Vol. 13, Pages 860: Integrated Biological Control Using a Mixture of Two Entomopathogenic Bacteria, ...

Insect immunity defends against the virulence of various entomopathogens, including Bacillus thuringiensis (Bt). This study tested a hypothesis ...

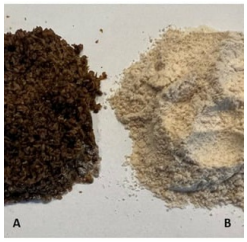
www.mdpi.com

20/09/2022

Entobel starts on second insect meal factory

Singapore-based Entobel has broken ground for the construction of its newest insect meal factory in Ba Ria, Vung Tau province, Vietnam. This ...

www.asian-agribiz.com



20/09/2022

Molecules, Vol. 27, Pages 6155: Adding Mealworm (Tenebrio molitor L.) Powder to Wheat Bread: Effects on Ph...

All articles published by MDPI are made immediately available worldwide under an open access license. No special permission is required to ...

www.mdpi.com

16/09/2022

Agronomy, Vol. 12, Pages 2211: Agronomic Performance of Kale (Brassica oleracea) and Swiss Chard (Beta vulga... .. ...

The wonder multistorey garden (WMSG) is an innovative vertical farming system tailored for urban settings that can be constrained by the ...

www.mdpi.com

16/09/2022

Productivity and larval growth of Tenebrio molitor reared on differently composed diets of similar nutritional composition

The artificial diet of Tenebrio molitor has been a focal point of many studies that aimed to design the best diet combination. Recently, studies are focusing on the use of by-products and their efficiency as diets for rearing T. molitor. The ...

dx.doi.org

16/09/2022

Alpha-amylase as the culprit in an occupational mealworm allergy case

CONCLUSION: Alpha-amylase can be identified as the responsible allergen in this specific case of occupational mealworm allergy.

pubmed.ncbi.nlm.nih.gov

15/09/2022

Functional utilization of biochar derived from Tenebrio molitor feces for CO2 capture and supercapacitor applications

Biochar has attracted great interest in both CO(2) capture and supercapacitor applications due to its unique physicochemical properties and low cost. Fabrication of eco-friendly and cost-effective biochar from high potential biomass Tenebrio ...

pubmed.ncbi.nlm.nih.gov

13/09/2022

How Technology is Disrupting the Insect Pest Control Market by Adama, BASF, Bayer, Ecolab, FMC Corporation

North America region emerged as the largest market for the global insect pest control market with a 36.6%share of the market revenue in 2020. ...

agriculture.einnews.com

13/09/2022

Insects, Vol. 13, Pages 831: Nutritional Composition of Black Soldier Fly Larvae (Hermetia illucens L.) and ...

The rapidly growing population has increased demand for protein quantities and, following a shortage of plant-based feed protein sources and ...

www.mdpi.com

09/09/2022

Growth performances, chemical composition, and microbiological loads of mealworm reared with brewery spent grains and bread leftovers

Volume 21, Issue 1, December 2022, Page 1419-1429.

www.tandfonline.com

09/09/2022

Potential Applications of Frass Derived from Black Soldier Fly Larvae Treatment of Food Waste: A Review

The disposal of large amounts of food waste has caused serious environmental pollution and financial losses globally. Compared to alternative disposal methods (landfills, incineration, and anaerobic digestion), composting by black soldier fly ...

pubmed.ncbi.nlm.nih.gov

06/09/2022

The selected quality aspects of infrared-dried black soldier fly (Hermetia illucens) and yellow mealworm (Tenebrio molitor) larvae pre-treated by pulsed electric field

Publication date: August 2022Source: Innovative Food Science & Emerging Technologies, Volume 80Author(s): Radosław Bogusz, Sergiy Smetana, Artur Wiktor, Oleksii Parniakov, Katarzyna Pobiega, Katarzyna Rybak, Małgorzata Nowacka

www.sciencedirect.com

06/09/2022

Insects, Vol. 13, Pages 812: Toxicity, Behavioral Effects, and Chitin Structural Chemistry of Reticulitermes ...

Botanical pesticides are considered the most promising alternative to synthetic pesticides, considering their less negative impacts on the environment ...

www.mdpi.com

06/09/2022

Morphofunctional characterization of hemocytes in black soldier fly larvae

In insects, the cell-mediated immune response involves an active role of hemocytes in phagocytosis, nodulation, and encapsulation. Although these processes have been well documented in multiple species belonging to different insect orders, i...

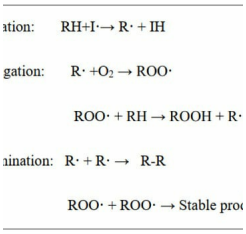
pubmed.ncbi.nlm.nih.gov

05/09/2022

Study of the Bioconversion Process of Black Soldier Fly (Hermetia Illucens) Larvae in Decomposition of Various ...

Poor waste management will affect various aspects such as environmental pollution due to piles of garbage that disturb the community. It needs ...

www.neliti.com

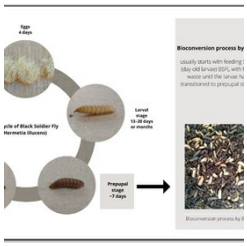


02/09/2022

Fuels, Vol. 3, Pages 533-554: Influence of Transesterification Catalysts Synthesized with Citric Acid on the ...

In biodegradable waste management, use of Black Soldier Fly Larvae (BSFL) is a promising method for bioconversion of waste into crude insect ...

www.mdpi.com



01/09/2022

Foods | Free Full-Text | Potential Applications of Frass Derived from Black Soldier Fly Larvae...

...frass fertilizer-treated plots had a net revenue that was 29–44% more than maize grown on commercial organic fertilizer-trea ... 12.5 kg less ...

www.mdpi.com

01/09/2022

Two low-toxic Klebsiella pneumoniae strains from gut of black soldier fly Hermetia illucens are multi-resistance to sulfonamides and cadmium

In recent years, pollution of antibiotics and heavy metal has often been reported in organic wastes. Saprophytic insects have been recorded as biological control agents in organic waste management. During organic waste conversion, the intestinal ...

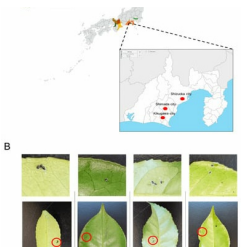
pubmed.ncbi.nlm.nih.gov

01/09/2022

Insects, Vol. 13, Pages 801: Modulating the Fatty Acid Profiles of Hermetia illucens Larvae Fats by Dietary ...

Edible insects such as the black soldier fly Hermetia illucens L. represent a potential and sustainable source of nutrients for food and feed ...

www.mdpi.com

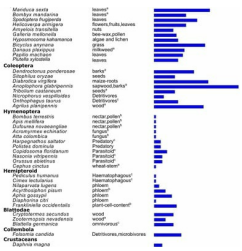


31/08/2022

Insects, Vol. 13, Pages 788: Wolbachia in Black Spiny Whiteflies and Their New Parasitoid Wasp in Japan: Evidence ...

Wolbachia, an alphaproteobacterial reproductive parasite, can cause profound mitochondrial divergence in insects, which might eventually be a ...

www.mdpi.com



30/08/2022

Insects, Vol. 13, Pages 786: The Evolution of Glycoside Hydrolase Family 1 in Insects Related to Their Adaptation ...

Insects closely interact with plants with multiple genes involved in their interactions. β-glucosidase, constituted mainly by glycoside ...

www.mdpi.com

26/08/2022

Insect left-over substrate as plant fertiliser

The production of insect protein as human food and livestock feed (entomophagy) may provide a more environmentally beneficial alternative to traditional animal agriculture. However, the resulting waste product from insect production has resulted ...

dx.doi.org

26/08/2022

Effect of Black Soldier Fly (Hermetia illucens L.) Fat on Health and Productivity Performance of Dairy Cows

Due to the intensive development of technologies for obtaining protein, energy feed and biologically active supplements from insects, the feasibility and effectiveness of introducing these products into the rations of farm animals require further ...

pubmed.ncbi.nlm.nih.gov

25/08/2022

Toxic Effects of Industrial Flocculants Addition on Bioconversion of Black Soldier Fly Larvae (Hermetia illucens L.)

Black soldier fly is a saprophagous insect that has been widely reported in recent years due to its excellent performance in bioremediation. Due to the widespread presence of flocculants in the organic waste treated by black soldier fly larvae, ...

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24/08/2022

Detoxication and bioconversion of aflatoxin B1 by yellow mealworms (Tenebrio molitor): A sustainable approach for valuable larval protein production from contaminated grain

Yellow mealworm (Tenebrio molitor) is a supplementary protein source for food and feed and represents a promising solution to manage grain contaminated with Aflatoxin B(1) (AFB(1)). In this study, AFB(1) present in different concentrations in ...

pubmed.ncbi.nlm.nih.gov

24/08/2022

Insects, Vol. 13, Pages 764: Nutritional and Functional Properties of Defatted Flour, Protein Concentrates, ...

Brachytrupes membranaceus and Macrotermes subhyalinus are edible insects in Burkina Faso. Our research aimed to evaluate the nutritional composition ...

www.mdpi.com

22/08/2022

Sustainability, Vol. 14, Pages 10456: Greenhouse Gas Emissions and Life Cycle Assessment on the Black Soldier ...

The black soldier fly (BSF) is recognised as a valuable insect for mitigating feed and organic waste management challenges. Thus, concerted efforts ...

www.mdpi.com

19/08/2022

Economic viability of insect meal as a novel ingredient in diets for broiler chickens

The study aimed to evaluate the economic efficiency of supplementation of Tenebrio molitor meal in the diet for broilers, from 1 to 35 days of age. For that, data from a preliminary study were used to evaluate the inclusion of T. molitor meal ...

dx.doi.org

19/08/2022

Welfare considerations for farming black soldier flies, Hermetia illucens (Diptera: Stratiomyidae): a model for the insects as food and feed industry

Over two hundred billion black soldier flies (BSF, Hermetia illucens (Diptera: Stratiomyidae)) are reared annually across the globe, with the industry projected to grow substantially in the coming decade. Black soldier flies are being actively ...

dx.doi.org

19/08/2022

Production of carotenoid-rich Hermetia illucens larvae using specific agri-food by-products

Nowadays, the mass production of insects is promoted not only for their nutritional value, but also for their ability to convert agri-food by-products into high valuable derived products. In the present work, the potential production of caro...

dx.doi.org

19/08/2022

In vitro assessment of protein digestibility and mineral solubility of black soldier fly larvae meals for monogastric animals

Animal farming is a fast-growing sector which demands a large supply of feed materials and the search for novel feed ingredients with a smaller impact on the global environment has been intensified. However, before the inclusion of these feed ...

dx.doi.org

19/08/2022

Treatment of wastewater using black soldier fly larvae, under different degrees of biodegradability and oxidation of organic content

The biological treatment process based on the metabolism of Black Soldier Fly (BSF) larvae proved to be a highly promising technique for the treatment of high organic content (HOC) wastewater, such as sewage from food industries, leachate from ...

pubmed.ncbi.nlm.nih.gov

16/08/2022

Evaluation of full-fatted and hydrolysate mealworm (Tenebrio molitor) larvae as a substitute for spray-dried plasma protein diet in weaning pigs.

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europepmc.org

05/08/2022

Nutritional Characteristics of Selected Insects in Uganda for Use as Alternative Protein Sources in Food and Feed

Abstract Insects are potential ingredients for animal feed and human food. Their suitability may be influenced by species and nutritional value. This study was aimed at determining the nutritional profile of four insects: Dipterans; black soldier ...

dx.doi.org

05/08/2022

Behavioral Asymmetries Affecting Male Mating Success in Tenebrio molitor (Coleoptera: Tenebrionidae), an Important Edible Species

Abstract The yellow mealworm, Tenebrio molitor L., is one of the most significant insect species of economic importance for producing protein-rich food and feed. The larvae are a promising fishmeal substitute for fish feed, and a good alternative ...

dx.doi.org

01/08/2022

Development and Testing of a Smart Bin toward Automated Rearing of Black Soldier Fly Larvae ...

The Black Soldier Fly (BSF), can be an effective alternative to traditional disposal of food and agricultural waste (biowaste) such as landfills because its larvae are able to quickly transform biowaste into ready-to-use biomass. However, several ...

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01/08/2022

Additional file 1 of A plant-based diet supplemented with Hermetia illucens alone or in combination with poultry ...

Additional file 1: Supplementary methods. Description of the environmental and economic sustainability feed indices used in the study, including ...

dx.doi.org

29/07/2022

Behaviour of two fly species reared for livestock feed: optimising production and insect welfare

The mass rearing of insects as animal feed is a new and rapidly growing component of circular agriculture, which offers the opportunity to develop it in such a way that it promotes insect health and welfare. Behaviour is an important indicator ...

dx.doi.org

29/07/2022

Feeding black soldier fly larvae (Hermetia illucens) reared on organic rest streams alters gut characteristics of Atlantic salmon (Salmo salar)

The Atlantic salmon (Salmo salar) aquaculture industry is growing, and with it, the need to source and optimise sustainable ingredients for aquafeeds. Black soldier fly (BSF) larvae (Hermetia illucens) have received increasing research attention ...

dx.doi.org

27/07/2022

The Influence of Non-Optimal Rearing Conditions and Substrates on the Performance of the Black Soldier Fly (Hermetia illucens)

Among the insect species reared as alternative protein sources, Hermetia illucens (black soldier Fly, BSF) has shown a huge potential mostly due to its high protein content, its bioconversion rates, and versatility in using different feeding ...

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27/07/2022

Particularities of the Hermetia illucens (L.) (Diptera: Stratiomyidae) Ovipositing Behavior: Practical Applications

The industrial rearing of Hermetia illucens offers sustainable solutions to the acute challenges of modern society associated with the accumulation of increasing amounts of organic waste, the substantial reduction of natural ocean fish stocks, ...

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26/07/2022

Hermetia illucens L. larvae-associated intestinal microbes reduce the transmission risk of zoonotic pathogens in pig manure

Black soldier fly (BSF) larvae are considered a promising biological reactor to convert organic waste and reduce the impact of zoonotic pathogens on the environment. We analysed the effects of BSF larvae on Staphylococcus aureus and Salmonella ...

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22/07/2022

Hermetia illucens larvae as a Fishmeal replacement alters intestinal specific bacterial populations and immune homeostasis in weanling piglets

Abstract Hermetia illucens larvae meal (HILM) are rich in proteins and chitin, and represent an innovative feed ingredient for animals. However, little is known about the intestinal bacteria and immune homeostasis response of HILM as a fishmeal ...

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22/07/2022

Microbes Associated With Black Soldier Fly (Diptera: Stratiomiidae) Degradation of Food Waste

Abstract Black soldier fly (Hermetia illucens L.) larvae are capable of valorizing waste by converting it into insect biomass that can be used as animal feed, leaving undigested residue that can be used as soil enrichment. Evidence is conflicting ...

dx.doi.org

22/07/2022

Impact of Agro-industrial Byproducts on Bioconversion, Chemical Composition, in vitro Digestibility, and Microbiota of the Black Soldier Fly (Diptera: Stratiomyidae) Larvae

Abstract The interest in using byproducts from agro-food industries as a rearing substrate for insects is increasing rapidly. We investigated the influence of byproducts of vegetal origin (okara—a byproduct of soy milk production, maize distillers ...

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21/07/2022

Current Status of Immune Deficiency Pathway in Tenebrio molitor Innate Immunity

Yellow mealworm (Tenebrio molitor) is a highly beneficial beetle that serves as an excellent source of edible protein as well as a practical study model. Therefore, studying its immune system is important. Like in other insects, the innate immune ...

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20/07/2022

Valorization of seasonal agri-food leftovers through insects

8 ; Most of the leftovers from agricultural productions and industrial processing of vegetables are currently discarded as waste, augmenting ...

hdl.handle.net

20/07/2022

Composition of black soldier fly prepupae and systematic approaches for extraction and fractionation of protein... .. ...

7 ; open ; Black soldier fly (BSF, Hermetia illucens) constitutes an economic way to convert residual biomasses into a valuable source of bio...

hdl.handle.net

20/07/2022

Effect of the rearing substrate on total protein and amino acid composition in black soldier fly

8 ; no ; none ; Insects are becoming increasingly relevant as protein sources in food and feed. The Black Soldier Fly (BSF) is one of the most ...

hdl.handle.net

20/07/2022

Antimicrobial biomasses from lactic acid fermentation of black soldier fly prepupae and related by-products

9 ; no ; none ; Worldwide, thousands of insect species are consumed as food or are used as feed ingredients. Hermetia illucens, 'black soldier ...

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19/07/2022

English Capturing and rearing the Black Soldier Fly (Hermetia Illucens) for organic waste biodegradation in Puerto Quito, Ecuador. ; Captura y cría de la mosca soldado negra (Hermetia Illucens) ...

Hermetia illucens, the black soldier fly- BSF(Black Soldier FLY), is one of the most studied species with the enormous potential to convert organic waste into animal food and feed and fertilizers. This invertebrate larva transforms up to 50% ...

journals.gdeon.org

19/07/2022

Insects are a viable protein source for human consumption: from insect protein digestion to postprandial muscle ...

Background: Insects have recently been identified as a more sustainable protein-dense food source and may represent a viable alternative to c...

cris.maastrichtuniversity.nl

17/07/2022

Rearing Black Soldier Fly to Supplement Natural Populations in Waste Composting Systems

The black soldier fly, Hermetia illucens L. (Stratiomyidae; Diptera), is a common and widespread non-pest fly and an essential decomposer of ...

tigerprints.clemson.edu

17/07/2022

Integrating Biosystems to foster Sustainable Aquaculture: Using Black Soldier Fly Larvae as Feed in Aquaponic Systems

Not submitted as official thesis? ; Chapter 1 of this report examines the current state of aquaculture and identifies two major environmental concerns associated with it, namely nutrient pollution by effluent and use of fishmeal-based feed. ...

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15/07/2022

Effects of 50 Percent Substitution of Soybean Meal by Alternative Proteins from Hermetia illucens or Spirulina ...

Effects of 50 Percent Substitution of Soybean Meal by Alternative Proteins from *Hermetia illucens* or Spirulina platensis ...

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15/07/2022

Immature Development Time of Hermetia illucens L. in Different Varieties of Feed

Immature Development Time of *Hermetia illucens* L. in Different Varieties of Feed ()

...

dx.doi.org

11/07/2022

Safety of frozen and freeze-dried formulations of the lesser mealworm (Alphitobius diaperinus larva) as a Novel food pursuant to Regulation (EU) 2015/2283

Following a request from the European Commission, the EFSA Panel on Nutrition, Novel Foods and Food Allergens (NDA) was asked to deliver an opinion on frozen and dried formulations from whole lesser mealworm (Alphitobius diaperinus larva) as ...

pubmed.ncbi.nlm.nih.gov

11/07/2022

Valorization of pretreated biogas digestate with black soldier fly (Hermetia illucens, L; Diptera: Stratiomyidae) larvae

Increasing concerns related to the negative environmental impacts of food waste havemotivated the development of new solutions to complete the waste cycle of organic residues. One particular "waste" product, the solid digestate from anaerobic ...

pubmed.ncbi.nlm.nih.gov

08/07/2022

Potentials of a biogenic residue-based production of Hermetia illucens as fish meal replacement in aquafeed for Oncorhynchus mykiss in Germany

Owing to an increasing world population and a rising demand in protein for food and feed, alternative protein sources are needed. In addition, existing food and protein supplies such as wild and farmed fish need to be secured. Insects and more ...

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08/07/2022

Mineral composition in black soldier fly (Hermetia illucens) larvae and resulting frass from fruit and their peels

Farming black soldier fly (Hermetia illucens) larvae (BSFL) leads to two products; BSFL as high quality protein/lipid and leftover ‘frass’ as an organic fertiliser. Little information exists on the influence of different substrates on the mineral ...

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