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NEWSLETTER

EASYTRAIN

Aquaculture, research and innovation

INFORMATION WITH ARTICLES OF INTEREST

PIONEERING BIOTECH COMPANY MIALGAE LAUNCH OMEGA-3 PRODUCT, NATURALGAE

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MiAlgae, a biotechnology company based in Scotland, has been able to launch a commercial manufacture of microalgae-derived Omega-3 product. By producing Omega-3 in microalgae it is possible to avoid exploiting the natural fish populations to obtain this essential fatty acid. In microalgae cultivation the company utilises co-products from whisky industry, thus promoting circular economy and the sustainability of the processes.

ANDALUSIAN RESEARCHERS IDENTIFY A PROTEIN IN THE KIDNEY OF FISH THAT MEASURES THEIR STRESS IN CAPTIVITY

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A recent study conducted by Spanish researchers on meagre fish (Argyrosomus regius) has identified a specific renal protein that can be used as an indicator of both acute and chronic stress. This finding opens up opportunities for the development of non-invasive methods to assess and ensure the welfare of farmed fish.

THE TIME OF THE DAY MATTERS

Santiago Pintos

DAILY RHYTHMS IN THE BEHAVIOURAL STRESS RESPONSE OF THE ZEBRAFISH DANIO RERIO

This study, conducted at the University of Ferrara, sheds light on how stress-related behaviours vary according to the time of day in the zebrafish Danio rerio, a teleost model species. Authors explored how zebrafish respond behaviourally to stress events at different times of the day, subjecting them to a novel environment paradigm every 4 hours over a 24-hour cycle.

By assessing the behavioural performance of both isolated and grouped fish, the results supported the presence of circadian rhythmicity in well-reported zebrafish anxiety-like behaviours. However, it was discovered that not all behaviours showing daily variations were driven by stress. Specifically, the thigmotaxis behaviour emerged as a reliable stress indicator throughout the day, as confirmed by a control experiment.

Interestingly, the study also revealed that the impact of stress was more pronounced when the stressor occurred at night rather than during the day. This finding highlights the importance of considering the time of day when disturbing fish species. The implications of this research could be significant in refining manipulation protocols and enhancing fish welfare in aquaculture settings, where understanding chronobiological factors and aligning routine and maintenance activities with optimal times may prove beneficial.

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MORE ARTICLES OF INTEREST

WASTEWATER AND SLUDGE VALORISATION FROM RECIRCULATING AQUACULTURE SYSTEMS

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MTo counter the fact that more than 2.2 billion of tonnes of waste are produced every year in the European Union, a switch toward circular economy is currently ongoing to extend the life cycle of a products with the objectives to reduce and to create a value on waste. Recirculating aquaculture system is already promoted as sustainable for intensive aquaculture systems for low footprint, low water use and controlled environment. However, it comes at a cost, one is the energy consumption and two the discharge regulations become stricter as facilities increased their production hence their waste. The valorisation of aquaculture waste becomes a major objective for the industries, as described by the CEO of Marineholmen RASLab (Norway). This article is giving value to my current research about the valorisation of marine aquaculture sludge from recirculated aquaculture system.

WHY NOVEL AQUAFEED INGREDIENTS ARE LIKELY TO REMAIN NICHE FOR SOME TIME

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Øyvind Fylling-Jensen, CEO of Nofima, a Norwegian food research institute, shedded light on the current state of novel aquafeed ingredients and their potential impact on aquaculture. He said that while these innovative ingredients offer promising benefits, they are expected to remain niche in the aquafeed sector for the foreseeable future. This limitation is primarily attributed to various factors, including challenges related to availability, cost, and regulatory compliance. These barriers pose significant hurdles to the widespread adoption of novel aquafeed ingredients, hindering their integration into mainstream aquaculture practices. As the industry continues to explore and address these challenges, it is anticipated that the utilization of such ingredients will gradually expand over time.

GLOBAL AQUAPONICS MARKET REPORT 2023

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The global aquaponics market is projected to reach USD 2,294.48 million by 2030, growing at a CAGR of 13.0%. Aquaponics combines aquaculture and hydroponics to create a sustainable hybrid system that produces fish and plants in a controlled environment. The advantages of aquaponics include water usage efficiency, high yield, organic production, and resource optimization. The demand for aquaponics is driven by the increasing demand for food, limited resources, and the self-sufficiency of the system. Despite disruptions caused by the COVID-19 pandemic, aquaponics is gaining attention as an alternative farming technique, with installations in supermarkets and urban warehouses. The UN supports the installation of aquaponics systems in sensitive territories such as the Gaza stripe in order to support food security.