DAY 1

KeynoteForum

European Summit on

Aquaculture, Fisheries and Horticulture

September 20- 21, 2018 Lisbon, Portugal

EuroSciCon

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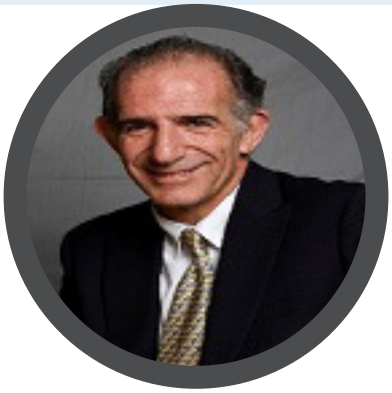
TOWARDS FISH GROWTH AND QUALITY OPTIMIZATION IN AQUACULTURE



Joaquim Gutierrez, E J Velez, M Perello-Amoros, N Riera-Heredia, A Sanchez-Moya, S Balbuena-Pecino, F Lavajoo, M Riera-Codina, J Fernandez-Borras, J Blasco, E Capilla and I Navarro

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The decrease of fish captures and the increasing demand of aquatic products for human consumption have boosted aquaculture to convert it in an important agronomic activity around the world. One of the bottlenecks that limit the development of this industry is the time required for most of the cultured fish species to reach the commercial size. The regulatory system controlling fish growth is now much better understood and we should take advantage of this knowledge to apply it to fish culture production. Recent advances on the role of growth hormone (GH) and the insulin-like growth factors (IGFs) axis, and its relationship with anabolic and proteolytic systems, involved in remodelling of fish muscle, will be reviewed in different *in vivo* as well as *in vitro* models that aim to optimize growth and flesh quality. First, the possibility to increase growth in terms of biological limitation has been studied with GH prolonged treatments. The search for adequate components or potential additives to the diet that can determine a better GH/IGF axis status will be summarized. Finally, the physical activity of the fish during the culture can increase growth and model the muscle structure improving flesh texture. The regulatory mechanisms for such processes have been investigated in different species and will be also presented. All these approaches combined with other technical improvements can result in a significant increase of fish production and quality, necessary to satisfy the society demand for healthy aquatic products.

Biography

Joaquim Gutierrez has completed his PhD in Fish Physiology from University of Barcelona and did his Postdoctoral studies from University of Washington at the Department of Biology in 1988/89. He is Professor of Physiology and Director of the Department of Cell Biology, Physiology and Immunology at the School of Biology at the University of Barcelona, where co-ordinates the research group on Growth optimization of Fish Aquaculture species. He has published more than 150 papers in reputed journals and book chapters and has been serving as Editorial Board Member of different publications.

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AQUAPONICS IN EUROPE POINTING THE WAY TO A MORE SUSTAINABLE DEVELOPMENT

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Aquaponics is the process of growing fish and plants in the same water circuit, taking advantage of aquaculture and hydroponics techniques. Nutrients, generated by fish farming, fertilize water and are absorbed by plants, which in turn grow and clean the water returning to the fish tanks. Aquaponics, as a recent productive discipline, has seen its ups and downs, successes and failures on a commercial and entrepreneurial scale. More recently, the American continent has been demonstrating aquaponics economic feasibility, with large and medium-sized projects generating profitability and banks taking the first steps in financing such projects. In the last 3 years, as a result of the push of the COST Action FA1305 - EU Aquaponics Hub, Europe has jumped from follower to leader in science research in this field, becoming the continent that has devoted more studies and scientific publications to aquaponics. While universities and scientific institutes make Europe a world leader, Europe is still making a very shy progress in aquaponics at a commercial level. The reasons for this difficulty and little expression are several but very striking and determinant for this slow development. Of note is the impossibility of certifying aquaponic production as organic in Europe and also an unreasonable preconception regarding the Blue Economy, facing it as economy of the sea and ignoring the potential of freshwater aquaculture, which ends up contributing to a more environmentally unsustainable aquaculture. It is also worth noting the widespread lack of experience and technical skills in the design, installation and operation of aquaponics systems, with some very large investments but lacking the technical and economic feasibility. Finally, most of the EU governments are still very much focused in conventional aquaculture and agriculture, not considering the advantages of this more sustainable concept, reflecting the lack of legislative harmonization and of European policies in this respect, with excessive legislative and licensing constraints.

Biography

Raul Bernardino graduated in Technological Chemistry at the Faculty of Sciences of the University of Lisboa (FCUL). After graduation, he worked in the Food Industry (Garina Ltd) and then joined the Department of Chemical Engineering of the Polytechnic Institute of Tomar (IPT) as Teaching Assistant. In 1998, he started his post-graduate studies in the Department of Chemistry of FCUL, where in 2002 he obtained his Ph.D. degree in Computational Chemistry applied to Supramolecular Chemistry. In the same year, he moved to Polytechnic Institute of Leiria where he pursues his teaching and research career. From 2005 to 2009 he was the director of "Laboratório Biotecnológico do Oeste" (LBO) and in 2009 to 2012 was the coordinator of the aquaculture master degree. From 2011 to 2012 he made a specialist degree in Aquaculture in the Polytechnic University of Valencia, Spain. Since 2009 water quality and Aquaponics are part of his research, having oriented several master thesis on these subjects. He is the Principal Investigator of an ongoing European funded research project "Home Greens, Household Aquaponics: Integrated Multi Trophic Aquaculture (IMTA)".

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