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AQUAPONICS IN EUROPE POINTING THE WAY TO A MORE SUSTAINABLE DEVELOPMENT

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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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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.