

Title: Modulation of fish allergenicity towards the production of a low allergen farmed fish; a proteomics approach.

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Food allergies are a significant public health concern throughout the world. Fish is a food product increasingly consumed worldwide due to its high nutritional value and healthy meat. Unfortunately, like many food sources, fish can cause adverse immune-mediate reactions in some individuals. This allergic reaction to food, affects 1-3% of the population and about 4-6% of children. The main fish allergen is β-parvalbumin; a small and highly stable muscle protein. Fish parvalbumins are highly conserved proteins, which are binding bivalent ions, calcium or magnesium. In fish-allergic patients, specific IgE cross-react mostly with parvalbumins from different fish, especially when recognizing highly identical protein regions involved in the ion binding. Other fish allergens have been identified as well - such as enolases, aldolases or fish gelatin - but their importance has been only shown for a limited number of fish species. Currently, there is no cure available for fish allergies with the clinical management of fish allergy solely relying on a strict avoidance diet. Modulation of fish allergenicity towards the production of a low allergen farmed fish was firstly attempted by our group. This has been done with specifically designed fish diets, enriched in components and small changes introduced in the fish farming process that target the expression or inactivation of the main fish allergen; parvalbumin. Proteomics is the chosen technique to access fish allergens characterization and expression in muscle while IgE assays to confirm the lower allergenic potential of this fish are conducted in patients with history of fish allergies.

Biography

Pedro M. Rodrigues has a PhD in Chemistry from the Universidade Nova de Lisboa and is presently a Professor at University of Algarve, Portugal since 2000 and a member of the Center of Marine Science of the Algarce. He has been working in the use of proteomics in Aquaculture to access fish quality, welfare and allergies for the past 10 years and he has been involved in several research projects, two COST actions and published 34 papers in reputed journals, 3 book chapters and has also been serving as an editorial board member of repute.

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Session name/ number: Food and Nutritional proteomics
Category: Poster presentation