

Food Technology Cooperation - Mariusz Szymczak

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About me:

My research experience is in fish technology, especially raw materials with high proteins content. I have the pleasure to cooperate with many industrial partners from fish industry in Poland in following R&D areas: fresh and frozen fish, salting, marinating, smoking, surimi. I also have several patents and know-how, which is implemented in industry.



Experience:

1. Fish technology, high protein content raw food materials,
2. Zero waste, closed circulation, recovery of valuable components (proteins, lipids, enzymes, dyes) from solid and liquid by-products in food industry, pro-ecological and pro-health food technology,
3. Valorization of low-technology raw materials by physical, chemical and enzymatic methods,
4. Use of enzymes in food technology, immobilization of enzymes,
5. Use of technological properties of proteins and their hydrolysis products to improve food quality,
6. Use of new methods of chilling and freezing of food, the impact of storage on food quality.

Ready know-how:

1. Recovery of biologically active peptides from hydrolysates (salting and marinating brines) discarded in the fish industry; previously described in the literature methods of fractionation by ultrafiltration are not effective because these hydrolysates block membranes; We have developed a method to improve the characteristics of hydrolysates, which can then be easily fractionated and dried to be free of ballast substances; natural marine peptides can be used in food and packaging.
2. Recovery of digestive proteases from the viscera of fish with high proteolytic activity and low hemoglobin content; preparation of crude and purified multicatalytic preparations; We have also developed methods to apply these preparations in salting and marinating technology of fish that are resistant on enzymatic ripening – new products not exist on market. The use of cheaper fish with lower technological quality, which so far are used for feed production.
3. New method for extraction and stabilization of astaxanthin monomers and aggregates from shrimp shells; we have developed a natural method that improves extraction efficiency, stabilizes the carotenoid, increases the color intensity of new formulations; application of astaxanthin in fish and dairy technology (pro-health food).
4. Recovery of protein from by-products and fish of low technological quality; we have developed a method for the production of bright-color surimi from herring fish having grey meat color; we have developed industrial parameters for the recovery of protein from salmonoid fish and its application to the production of smoked fish, fish burgers, sausages, cans etc.

Looking forward to your suggestions of cooperation.

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