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Natural Additives in FISH PROCESSING

Edited by: Dr. Viji Pankyamma
and Prerna Pandey

Natural Additives in Fish Processing

Despite the fact that fish is a highly nutritious and delicious muscle food commodity, it is highly perishable and hence, the use of preservatives for maintaining the quality of fish and fish products are unavoidable. Worldwide, researchers are exploring natural additives based on plant and animal origin for food applications and many of them have been successfully demonstrated to increase the shelf life of fish products. In addition to the preservative effect, some of the natural additives can also modify the sensory attributes and functional properties of the fish protein. This book is intended to provide an overview of various naturally derived compounds being used as a preservative/additive in different fish or fish products.

Microbial growth and fat oxidation are the major reasons for the rapid deterioration of fish quality. A vast number of natural antimicrobial compounds from plant sources have been identified over the years. Antibacterial compounds from microorganisms are also receiving much importance in the recent years. Chapter 1 gives an overview of safe and effective natural antimicrobial compounds and its application in different seafood products. Chapter 2 provides a brief account of the importance of fish lipids, the oxidation process, natural antioxidant compounds, its mechanism of action and its usage in fish and fish products. Development of active packaging material with the addition of antioxidant/antimicrobial compounds for delaying the spoilage of fish products is a widely encouraged technique. Chapter 3 gives a detailed description of antimicrobial packaging derived from natural sources. Chitosan is an extensively studied biopolymer because of its diverse biological activities useful for food applications. Chapter 4 discuss in details, the usage of chitosan and its derivative as an additive in the fish processing industry. Gelatin is also an important polysaccharide of different functional food applications.

Even though not much, the fish processing industry also requires colorants, especially for imitation products. The adverse health impact of synthetic coloring and flavoring agents are well documented and hence, exploring natural colorants and flavors is the need of the hour. This book also provides a review of the naturally available additives being used in the fish processing industry for the purpose of modifying the color of the seafood products in 5th Chapter. The book also intended to provide detailed information on gelatin, an important natural polysaccharide and for food applications in chapter 6. Finally, in chapter 7, we are trying to emphasize the influence of natural ingredients on the sensory properties of fish during processing or storage. In a nutshell, the book describes the potential of a range of natural ingredients to expand their preservative or other functional advantages in fish and fish products.

In near future, the synthetic additives will definitely be replaced by its natural counterparts. The book may be used as a reference for the students and academicians in the field of food technology with specialization in fish processing in graduate, undergraduate and postgraduate levels. Scientists working in fish processing can also find benefit out of this book. The extensive bibliography will allow the readers for availing further information on the specific area of interest.

We are indebted to the contributors of this book for sharing their expertise in the specific areas of the subject.

Dr. Viji P. is graduated from College of Fisheries, Panangad, Kerala in 2006 and completed M.F.Sc. in 2008 from ICAR-Central Institute of Fisheries Education, Mumbai. She joined as scientist in fish processing division of ICAR-CIFT in the year 2010. She has been associated with research projects in the areas of 'Shelf life extension of chilled and refrigerated fish and fisheries products, application of natural preservatives for improving fresh and frozen fish quality, Value addition of low value fishes and fresh water fishes, Development of n-3 PUFA fortified food products and developing innovative protocols for improving the quality of dried fish and shell fish' and 'improved drying technologies for fish'. She has 21 publications in national and International journals and 15 popular articles in her credit.

Dr Prerna Pandey, a biotechnologist with several years of wet lab research experience, has worked as a senior research fellow at International Center for Genetic Engineering and Biotechnology, New Delhi. Her field of research in PhD included isolation and molecular characterization of Geminiviruses, genome sequencing, gene annotation, as well as gene silencing using the RNA interference technology. She has published papers in peer-reviewed journals in the field and has a submitted a number of annotated Geminiviral genome sequences in the GenBank, including two novel ones. Prerna has also completed her editing and proof-reading courses from SfEP, UK and now works as a freelance scientific editor, writer and a subject matter expert. She has edited and co-authored several books on a range of topics in Life-Sciences. When Prerna is not busy with her assignments, she loves visiting historical places.

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