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Fish and Fishery Products Analysis

A Theoretical and Practical Perspective

 Springer

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This novel and informative book discusses the various aspects of seafood quality. The book is divided into 7 broad sections, each tackling a different aspect. The first section covers the general aspects relevant to the nutritional quality of the fish and the various extraction protocols for macro-/ micro-nutrients. The second section provides insights into handling and the principles of thermal and non-thermal processing techniques for commercially important fishery products. The quality standards and safety concerns in the seafood industry and consumption are discussed in this section. The freshness indices of the processed products including biochemical, microbiological and toxicological characteristics are also included. The third section discusses the physico-chemical characteristics and quality parameters of potable water/ ice. The fourth section includes the quality assessment of various toxicants related to seafood products. The fifth section deals with the specific aspects such as principle, instrument and procedures of conventional and novel analytical instruments relevant to the seafood industry. The sixth section deals with the seafood waste management including solid and liquid seafood wastes. Presently, there is a great awareness regarding environmental sustainable processing/ preservation techniques. The final chapter discusses the bioactive compounds from under-utilized marine sources showing pharmaceutical/ nutraceutical applications.

ISBN 978-981-32-9573-5



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4.1 Analysis of Food Additives

Food is inevitable to sustain life, and as a result, contaminated food becomes a very common source of toxicant exposure to humans. Several naturally occurring and synthetic contaminants find their way into food. More than 2500 chemical substances are added to foods to modify it. They are grouped under the regulatory term “food additives” and are defined as chemical substances deliberately added to foods in known quantities for purposes of assisting in the processing of foods and preservation of foods or in improving the flavor, texture, or appearance of foods. Food additives can be used directly or indirectly. Direct additives are those that are intentionally added to foods for a specific purpose, while indirect additives are those to which the food is exposed during processing, packaging, or storing. If a substance is added to a food for a specific purpose, it is referred to as a direct additive. Food additives and preservatives are used in today’s food supply to prevent foodborne illness, enable the transportation of food to areas that otherwise wouldn’t be possible, and for the efficient manufacture of products to consistently meet the established quality standards from batch to batch. The US Food and Drug Administration evaluates the safety of food additives and determines how they may be used in the food supply. If an additive is approved, the FDA issues regulations that may include the types of foods in which it can be used, the maximum amounts to be used, and how it should be identified on food labels. This section looks into the analysis of some of the commonly used intentional and unintentional additives.

4.1.1 Synthetic Food Additives and Adulterants

Synthetic food additives can be added intentionally to food to perform certain technological purposes which consumers often take for granted. They are needed to ensure that processed food remains safe and in good condition throughout its journey from factories or industrial kitchens, during transportation to warehouses and