

Saleena Mathew · Maya Raman  
Manjusha Kalarikkathara Parameswaran  
Dhanya Pulikkottil Rajan

# Fish and Fishery Products Analysis

A Theoretical and Practical Perspective

 Springer

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## **Fish and Fishery Products Analysis**

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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.

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Waste management is a huge problem in all the realms of the world. All industries contribute to the mass of biodegradable and non-biodegradable waste, and seafood industry is no exception in this matter. Till the last decade, seafood waste found their way directly into the sewers and nearby water bodies. But the waste production in those days was not in the same scale as of today. Modern seafood industries had scaled up their production and produce much larger amounts of waste, most of which is not degradable at the rate of deposition. Hence, we must look for better technologies of waste management.

The solid waste from the industry including shells, stomach parts, and bycatches is now in huge demand by many industries. The liquid waste is always a headache with no takers. The industry management must find their own measures for getting rid of it. Most of them depend on reverse osmosis, aerobic, and anaerobic filters for purifying the wastewater.

## 6.1 Seafood Waste Disposal

Fish waste is often classified as a certified waste with high disposal cost because of high organic content (Knuckey et al. 2004). Most of the seafood processing units have effluent treatment plants (ETP) for discharging liquid waste effluents into the backwaters. In Cochin, India, alone, seafood processing units (87.5%) are depending on private contract for disposing solid waste. Solid waste is utilized for biogas production by 12.5% units. Many institutions are giving awareness programs about by-product valorization possibilities. The high nutritional quality and the possibility of by-product valorization from seafood waste have resulted in a share of the waste generated to be utilized for developing by-products. Shrimp shell waste gets a better price in the market (US dollar 1.098–1.32 per box) than finfish and cephalopod (0.77–0.88). They are mainly used for by-product development, and the major portion for by-product is contributed by cephalopod (19.4%) followed by shrimp shell (15.23%) and finfish (2.2%) waste (Sasidharan and Mathew 2011).