

Handbook of Seafood Quality, Safety and Health Applications

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Preface

There has been a growing demand for seafoods due to their perceived health benefits. Seafoods are highly nutritious and provide a wide range of health-promoting compounds. Safety and quality are two main issues when considering seafoods, since they are highly perishable products, hence special attention should be paid from the time of the catch to the time they are prepared for food and consumed. Safety and freshness/quality of seafoods can be measured by sensory, non-sensory (chemical/biochemical, physico-chemical, and microbiological/biological), and statistical methods. During the last decade, the situation has changed dramatically in the seafood area and there has been a rapid development in the field for all three mentioned techniques, some of which are rapid and non-destructive in nature.

The marine ecosystem is the richest source of life, accounting for more than 80% of living organisms. Therefore, utilisation of marine resources (fish, marine mammals, micro- and macroalgae, shellfish, and invertebrates) for the development of nutraceuticals and functional foods is a daunting and challenging task. Marine-based nutraceuticals are gaining recognition due to their unique features, which are not found in terrestrial-based bioresources. For example, fish, marine mammals, and algae are the richest sources of long-chain omega-3 polyunsaturated fatty acids (PUFA) such as eicosapentaenoic acid (EPA), docosapentaenoic acid (DPA), and docosahexaenoic acid (DHA), which play an important role for health promotion and disease risk reduction. There are over 8,000 published papers on the health benefits of EPA, DPA, and DHA. The role of omega-3 PUFA, in a wide range of products and in the prevention of cardiovascular disease and in the development and function of the brain, has been well demonstrated.

This book is divided into three sections preceded by an introductory chapter (Chapter 1) providing an overview of seafood quality, safety, and health applications. The first section (Chapters 2–15) describes different aspects of seafood quality; the second section (Chapters 16–28) covers the safety of seafoods; and the final section (Chapters 29–43) discusses the health applications of seafood products, particularly marine nutraceuticals and functional foods. Contributing to this volume are internationally renowned researchers who have provided a diverse and global perspective of the issues of concern to seafood quality, safety, and health applications. The book will serve as a resource for those interested in the potential application of new developments in marine nutraceuticals and functional foods, as well as the role of science and technology in ensuring safety and quality. Biochemists, chemists, food scientists/technologists, nutritionists, health professionals, and marine technologists, from academia, government laboratories, and industry will benefit from this publication. Although this book is intended primarily as a reference book, it also summarises the current state of knowledge in key research areas and contains ideas for future work. In addition, it provides easy-to-read text suitable for teaching advanced undergraduate and post-graduate courses.

We are indebted to the participating authors for their state-of-the-art contributions and dedication in providing authoritative views resulting from their latest investigations on different aspects of seafood quality, safety, and health applications.

Cesarettin Alasalvar, Fereidoon Shahidi, Kazuo Miyashita, and Udaya Wanasundara

Contents

<i>Preface</i>	xxiii
<i>Contributors</i>	xxv
1 Seafood quality, safety, and health applications: an overview	1
Cesarettin Alasalvar, Fereidoon Shahidi, Kazuo Miyashita, and Udaya Wanasundara	
1.1 Introduction	1
1.2 Seafood quality	1
1.3 Seafood safety	3
1.4 Health applications of seafood	5
1.5 Conclusions	7
References	7
PART I SEAFOOD QUALITY	
2 Practical evaluation of fish quality by objective, subjective, and statistical testing	13
Cesarettin Alasalvar, John M. Grigor, and Zulfiquir Ali	
2.1 Introduction	13
2.2 Methods used for fish freshness and quality assessment: from source to the consumer	14
2.2.1 Latest developments in sensory methods	14
2.2.2 Latest developments in non-sensory methods	16
2.2.2.1 Chemical/biochemical methods	16
2.2.2.2 Physico-chemical methods	16
2.2.2.3 Microbiological/biological methods	17
2.2.3 Latest developments in statistical methods	19
2.2.4 Consumer testing for fish quality perception	21
2.3 Potential use of micro- and nanotechnologies	22
2.4 Conclusions	24
References	24
3 Sensory evaluation of fish freshness and eating qualities	29
David P. Green	
3.1 Introduction	29
3.2 Methods for sensory evaluation of fish	30
3.2.1 Torry scale	30
3.2.2 European Union Scheme	30
3.2.3 Quality Index Method	33

3.3	Pre-harvest factors affecting freshness	34
3.4	Post-harvest factors affecting freshness	34
3.5	Environmental taints	35
3.6	Extending freshness and shelf-life in fish	37
3.7	Conclusions	37
	References	37
4	Sensometric and chemometric approaches to seafood flavour	39
	Kae Morita and Tetsuo Aishima	
4.1	Introduction	39
4.2	Sensometric approach to seafood flavour	40
4.3	Chemometric approach to seafood flavour	41
4.3.1	Experimental designs and optimization	41
4.3.2	Pattern recognition	42
4.3.3	Multivariate regression analysis	43
4.3.3.1	Green	44
4.3.3.2	Grilled fish	44
4.3.3.3	Fried chicken	44
4.3.3.4	Cooked fish, sweet, canned tuna, and roasted soy sauce	44
4.3.4	Compound-sensory mapping	46
4.4	Conclusions	47
	References	48
5	Instrumental analysis of seafood flavour	50
	Hun Kim and Keith R. Cadwallader	
5.1	Introduction	50
5.2	Isolation of volatile flavour compounds	51
5.2.1	Headspace sampling	51
5.2.1.1	Static headspace sampling	51
5.2.1.2	Dynamic headspace sampling	54
5.2.1.3	Solid phase microextraction	54
5.2.1.4	Sorptive extraction	54
5.2.2	Solvent extraction and distillation extractions	55
5.2.2.1	Direct solvent extraction	55
5.2.2.2	Steam distillation extraction	55
5.2.2.3	High vacuum distillation extraction	56
5.3	Instrumental analysis of volatile flavour compounds	56
5.3.1	Gas chromatography	56
5.3.1.1	Gas chromatography-olfactometry (sensory-directed analytical techniques)	56
5.3.1.2	Multidimensional gas chromatography	59
5.3.2	Mass spectrometry	59
5.3.2.1	High resolution mass spectrometry	59
5.3.2.2	Selected ion monitoring mass spectrometry	60
5.3.2.3	Chemical ionization mass spectrometry	60
5.3.2.4	Negative chemical ionization mass spectrometry	60

5.3.2.5	Time-of-flight mass spectrometry	61
5.3.3	Electronic nose	61
5.4	Conclusions	61
	References	62
6	Quality assessment of aquatic foods by machine vision, electronic nose, and electronic tongue	68
	Figen Korel and Murat Ö. Balaban	
6.1	Introduction	68
6.2	Visual quality	68
6.2.1	Visual quality determination based on size and shape	69
6.2.2	Visual quality determination based on colour	69
6.3	Smell-related quality	71
6.4	Taste-related quality	72
6.5	Combination of machine vision system and electronic nose	75
6.6	Conclusions	75
	References	76
7	Effects of nutrition and aquaculture practices on fish quality	82
	Kriton Grigorakis	
7.1	Introduction	82
7.2	The role of muscle composition and fat deposition in fish quality	82
7.3	Effect of feeding and aquaculture practices on quality characteristics	83
7.3.1	Feeding and its impact on fish fat	83
7.3.1.1	Feeding intensity and dietary fat	84
7.3.1.2	Fish oil substitution	88
7.3.1.3	Finishing diets	88
7.3.1.4	Fasting	89
7.3.1.5	Factors other than feeding that affect fish fat	89
7.3.2	Feeding and handling: effect on muscle protein/amino acids	89
7.3.3	Feeding and aquaculture handling: effects on colour	89
7.3.4	Feeding and body shape	90
7.3.5	Feeding and effect on taste and flavour	90
7.3.6	Dietary and handling impacts on texture	90
7.3.7	Impact of aquaculture handling and killing procedure on post-mortem quality	91
7.3.8	Effect of feeding on post-mortem quality and technological properties	91
7.4	Conclusions	92
	References	92
8	Lipid oxidation, odour, and colour of fish flesh	96
	Jeong-Ho Sohn and Toshiaki Ohshima	
8.1	Introduction	96
8.2	Quantitative determination methodology of total lipid hydroperoxides by a flow injection analysis system	97

8.3	Lipid oxidation in ordinary and dark muscle of fish	98
8.4	Effects of bleeding and perfusion of yellowtail on post-mortem lipid oxidation of ordinary and dark muscles	102
8.5	Conclusions	105
	References	105
9	Blackening of crustaceans during storage: mechanism and prevention	109
	Kohsuke Adachi and Takashi Hirata	
9.1	Introduction	109
9.2	Phylogenetic position of prawns: the relation of PO and Hc	110
9.3	Biosynthetic pathway of melanin	111
9.4	Significance of melanisation in arthropods: pre-harvest and post-harvest	111
9.5	Biochemical characterisation of proPO and PO	112
9.6	The relationship of PO and melanogenesis in prawns	113
9.7	Hemocyanin and its enzymatic activation	114
9.8	The relationship of frozen storage and blackening	116
9.9	Prevention of melanosis in prawns	117
9.10	Conclusions	117
	References	117
10	Quality of freshwater products	119
	Masaki Kaneniwa	
10.1	Introduction	119
10.2	Lipid and fatty acid composition in freshwater fish	119
10.3	The effect of dietary fatty acid composition in cultured freshwater fish	123
10.4	Enzymatic hydrolysis of lipid in the muscle of freshwater fish	125
10.5	Quality of frozen surimi from freshwater fish meat	127
10.6	Conclusions	127
10.7	Acknowledgements	127
	References	128
11	Texture measurements in fish and fish products	130
	Zulema Coppes-Petricorena	
11.1	Introduction	130
11.2	Measurement of fish texture	131
11.2.1	Instrumental versus sensory methods	131
11.2.2	Raw and cooked fish products	131
11.2.3	Sensory evaluation	132
11.2.4	Texture measurement of fish flesh	132
11.3	Relevance of measuring texture in fish products	132
11.3.1	Firmness: a quality for good fish texture	133
11.3.2	Muscle structure of fish flesh	133
11.3.3	Muscle cell biology	133
11.3.4	Physical exercise	134

11.4	Textural measurements of fish products	134
11.5	Conclusions	134
11.6	Acknowledgements	136
	References	136
12	Quality and safety of packaging materials for aquatic products	139
	T.K. Srinivasa Gopal and C.N. Ravi Shankar	
12.1	Introduction	139
12.2	Packaging materials	139
12.2.1	Glass containers	139
12.2.2	Metal cans	139
12.2.3	Paper	141
12.2.4	Cellophanes	141
12.2.5	Polyethylene	141
12.2.6	Polypropylene (PP)	142
12.2.7	Polystyrene (PS)	142
12.2.8	Polyester	143
12.2.9	Polyamides (nylon)	143
12.2.10	Polyvinyl chloride (PVC)	143
12.2.11	Ionomers	143
12.2.12	Copolymers	144
12.2.13	Aluminium foil	144
12.3	Packaging requirements for fish products	144
12.3.1	Packaging of fresh fish	144
12.3.2	For bulk packaging	144
12.3.3	Modified atmosphere packaging (MAP)	145
12.3.4	Packaging of frozen fish	145
12.3.5	Packaging of surimi	146
12.3.6	Battered and breaded products	147
12.3.7	Packaging of dried fishery products	147
12.3.8	Packaging of canned fish	147
12.3.9	Ready to serve fish products in retortable pouches	148
12.3.10	Fish sausage	148
12.3.11	Accelerated freeze dried (AFD) products	148
12.3.12	Fish pickles	149
12.3.13	Fish soup powder	149
12.3.14	Shark fin rays	149
12.3.15	Chitin/chitosan	149
12.4	Safety aspects of packaging materials	150
12.5	Conclusions	153
	References	154
13	Fish mince: cryostabilization and product formulation	156
	Chong M. Lee	
13.1	Introduction	156
13.2	Background information	156
13.2.1	Rationale for the development of fish mince technology	156
13.2.2	Source of fish mince	157

13.3	Manufacture of fish mince and cryostabilization	158
13.3.1	Manufacture of fish mince	158
13.3.1.1	Manufacture of fish mince from ground white fish	159
13.3.1.2	Manufacture of fish mince from pelagic dark fish	160
13.3.2	Quality evaluation of fish mince	162
13.3.3	Cryostabilization of fish mince	162
13.4	Formulation of fish mince-based products in relation to ingredients and sensory quality	164
13.4.1	Ingredients and processing methods on texture	165
13.4.2	Freeze-thaw stability of uncooked mince-based products	166
13.4.3	Colour management	167
13.4.4	Flavour enhancement	167
13.4.5	Application of surimi-fish mince blend in fish cake and kamaboko products	167
13.5	Conclusions	168
13.6	Acknowledgements	168
	References	168
14	New trends in species identification of fishery products	171
	Hartmut Rehbein	
14.1	Introduction	171
14.2	Background information	171
14.3	Microarrays	172
14.4	Messenger RNA analysis	174
14.5	Detection of allergenic fish and shellfish	174
14.6	Determination of origin and stock assignment of fish	175
14.7	Data bases	176
14.7.1	FishTrace	177
14.7.2	FishGen	177
14.7.3	AFLP	177
14.7.4	Validation	177
14.7.5	FischDB	177
14.7.6	RFE	178
14.8	Conclusions	178
	References	178
15	An emerging powerful technique: NMR applications on quality assessments of fish and related products	181
	Somer Bekiroğlu	
15.1	Introduction	181
15.2	Low-field (time-domain) NMR applications	182
15.2.1	Water, lipids, and others	182
15.2.2	On-line and off-line applications: quality control	184

15.3	High-field NMR applications	184
15.3.1	Quantitative NMR applications and chemical compositions	185
15.3.2	Fingerprinting	186
15.3.3	The future: fish metabon(l)omics	187
15.3.4	NMR and authenticity	187
15.4	Projections on MRI applications	188
15.5	Conclusions	189
	References	190

PART II SEAFOOD SAFETY

16	Food-borne pathogens in seafood and their control	197
	Dominic Kasujja Bagenda and Koji Yamazaki	
16.1	Introduction	197
16.2	Major food-borne pathogens related to seafood	198
16.3	Current trends in control of seafood-borne pathogens	199
16.3.1	Biological methods of controlling pathogens in seafood	199
16.3.2	Physical and chemical methods of controlling pathogens in seafood	201
16.3.3	Hurdle technology for controlling pathogens in seafood	203
16.4	Conclusions	203
	References	203
17	Novel approaches in seafood preservation techniques	206
	Fatih Özogul, Yesim Özogul, and Esmeray Kuley Boga	
17.1	Introduction	206
17.2	Seafood preservation techniques	206
17.2.1	Modified atmosphere packaging (MAP)	206
17.2.2	Irradiation technology	207
17.2.3	Ozone (O ₃) preservation technique	208
17.2.4	Physical preservation methods	209
	17.2.4.1 Pulsed electric fields (PEF)	209
	17.2.4.2 Ultraviolet (UV) radiation	209
	17.2.4.3 Oscillatory magnetic fields (OMF)	210
	17.2.4.4 High pressure processing (HPP)	210
17.2.5	Ultrasound as a preservation technology	211
17.2.6	High intensity light	211
17.3	Conclusions	212
	References	212
18	Essential oils: natural antimicrobials for fish preservation	217
	Barakat S.M. Mahmoud and Kazuo Miyashita	
18.1	Introduction	217

18.2	Essential oils	217
18.2.1	Chemistry of essential oils	217
18.2.2	Active components of essential oils	218
18.2.3	Bacterial sensitivity to essential oils and their components	218
18.2.4	Phenolic compounds	218
18.3	Application of essential oils to fish preservation	219
18.3.1	Effect of essential oils on fish spoilage bacteria	219
18.3.2	Effect of essential oils on shelf-life of fish	220
18.3.3	Antimicrobial effect of combined treatment of essential oils with other antimicrobial agents	221
18.4	Conclusions	221
	References	222
19	Rapid methods for the identification of seafood micro-organisms	226
	Brian H. Himelbloom, Alexandra C.M. Oliveira, and Thombathu S. Shetty	
19.1	Introduction	226
19.2	Non-molecular (phenotyping)	226
19.2.1	Analytab products (api [®])	226
19.2.2	Biolog Inc.	226
19.2.3	Microbial Identification Inc. (MIDI)	227
19.2.4	Limitations for phenotypic identification of seafood and aquaculture bacteria	227
19.3	Molecular (genotyping)	228
19.3.1	Polymerase chain reaction (PCR) and real-time or quantitative PCR (qPCR)	228
19.3.2	Molecular subtyping techniques	228
19.3.3	Commercially-available systems	231
19.3.4	Polyphasic taxonomy	231
19.4	Conclusions	231
19.5	Acknowledgements	231
	References	232
20	Using predictive models for the shelf-life and safety of seafood	237
	Graham C. Fletcher	
20.1	Introduction	237
20.2	Predicting contamination	238
20.3	Predicting microbiological safety in chilled storage	238
20.3.1	Histamine production	238
20.3.2	Growth of <i>Listeria monocytogenes</i> in lightly preserved seafood	240
20.3.3	Toxin production by <i>Clostridium botulinum</i>	241
20.3.4	Other hazards	241
20.4	Predicting spoilage and shelf-life in chilled storage	242
20.4.1	The square root model as a secondary model	242
20.4.2	Linear responses as primary models	242

20.4.3	Specific spoilage organisms	242
20.4.4	Microbial growth under modified atmosphere packaging	243
20.4.5	Use of time-temperature indicators	243
20.4.6	Instrumental methods to detect spoilage	243
20.5	Predicting spoilage and shelf-life in frozen storage	244
20.6	Predicting inactivation	244
20.7	Conclusions	246
	References	246
21	Mathematical modelling of shrimp cooking	251
	Ferruh Erdoğan and Murat Ö. Balaban	
21.1	Introduction	251
21.2	Exact solutions	252
21.3	Numerical solutions	253
21.4	A numerical model for shrimp cooking	253
21.5	Applications	257
21.6	Conclusions	258
21.7	Nomenclature	258
	References	259
22	Transgenic/transgenic modified fish	261
	Jenn-Kan Lu, Jen-Leih Wu, and Meng-Tsan Chiang	
22.1	Introduction	261
22.2	Methodology of gene transfer in fish	261
22.2.1	Microinjection	262
22.2.2	Electroporation	262
22.2.3	Viral-mediated gene transfer (VMGT)	262
22.2.4	The fate of the transgene	263
22.2.5	Why study gene transfer in aquatic animals?	264
22.2.6	Applications of gene transfer technique in aquaculture	265
22.3	Food safety of transgenic fish	266
22.3.1	General concept	266
22.3.2	The gene product	267
22.4	Regulations of transgenic animals including aquatic animals	269
22.4.1	Environmental issues	269
22.4.2	Human health issues	270
22.4.3	Trade	270
22.4.4	Intellectual property protection	270
22.4.5	Labelling	270
22.4.6	Ethics	271
22.4.7	Public perceptions	271
22.5	Conclusions	271
	References	272
23	Molecular detection of pathogens in seafood	275
	Iddya Karunasagar and Indrani Karunasagar	
23.1	Introduction	275

23.2	Probe hybridisation methods	275
23.3	Nucleic acid amplification methods	278
23.3.1	Detection of bacterial pathogens	278
23.3.2	Detection of viral pathogens	282
23.3.3	Detection of parasites	282
23.3.4	Real-time PCR assays	283
23.3.5	DNA microarray assays	284
23.4	Conclusions	284
	References	286
24	DNA-based detection of commercial fish species	290
	Rosalee S. Rasmussen and Michael T. Morrissey	
24.1	Introduction	290
24.2	DNA-based methods and gene targets	291
24.2.1	DNA-based methods	291
24.2.2	Gene targets	293
24.3	Major collaborative efforts	295
24.3.1	FishTrace	295
24.3.2	DNA barcoding	296
	24.3.2.1 DNA barcoding of fish	296
	24.3.2.2 DNA barcoding for the detection of fish species substitution	297
24.4	Conclusions	299
24.5	Acknowledgements	300
	References	300
25	Seafoods and environmental contaminants	303
	Beraat Özçelik, Ümran Uygun, and Banu Bayram	
25.1	Introduction	303
25.2	Persistent environmental pollutants (PEPs)	303
25.2.1	Organohalogen compounds (OCs)	303
	25.2.1.1 Dioxin and dioxin-like compounds	304
	25.2.1.2 Brominated flame retardants (BFRs)	305
	25.2.1.3 Polychlorinated naphthalenes (PCNs)	305
	25.2.1.4 Organochlorine pesticides (OCPs)	305
25.2.2	Heavy metals	306
25.3	Aquaculture practices as a source of persistent contaminants	308
25.4	Factors affecting the occurrence of PEPs in seafood	310
25.5	Risk assessment and regulations	310
25.6	Policies to reduce exposure to PEPs	311
25.7	Conclusions	311
	References	312
26	Oxidation and stability of food-grade fish oil: role of antioxidants	317
	Weerasinghe M. Indrasena and Colin J. Barrow	
26.1	Introduction	317

26.2	Process of oxidation	317
26.2.1	Autoxidation	317
26.2.1.1	Initiation	318
26.2.1.2	Propagation	318
26.2.1.3	Termination	318
26.2.2	Photooxidation	318
26.3	Factors affecting the rate of lipid oxidation	319
26.3.1	Oxygen	319
26.3.2	Physical form of oil	319
26.3.3	Positional distribution of unsaturated fatty acids in the TAG molecule	319
26.3.4	Temperature	320
26.3.5	Microcomponents in the oil	320
26.3.5.1	Hydroperoxides	320
26.3.5.2	Free fatty acids	320
26.3.5.3	Thermally oxidized lipid compounds	320
26.3.5.4	Heavy metals	320
26.3.5.5	Pigments	320
26.3.5.6	Non lipid components in food	321
26.4	Food-grade fish oil	321
26.5	Control of lipid oxidation and improvement of the stability of fish oil	322
26.5.1	Careful handling and storage	322
26.5.2	Inhibiting oxidation	322
26.5.2.1	Inhibiting photooxidation	322
26.5.2.2	Inhibiting autoxidation	325
26.6	Antioxidants	325
26.6.1	Mechanism of phenolic antioxidants	327
26.6.2	Factors affecting the antioxidant activity of tocopherols	328
26.6.2.1	Concentration and type of tocopherol	328
26.6.2.2	Oxygen and temperature	329
26.6.2.3	Light	329
26.6.2.4	Substrate	329
26.6.2.5	Polarity and pH of the medium	330
26.6.2.6	Synergistic nature of tocopherols and other antioxidants	330
26.7	Selection of an antioxidant	331
26.8	Conclusions	332
	References	332
27	Global legislation for fish safety and quality	335
	Ioannis S. Arvanitoyannis and Persefoni Tserkezou	
27.1	Introduction	335
27.2	Global legislation in fish and fishery products	335
27.2.1	EU legislation	335
27.2.2	US legislation	338
27.2.3	Canadian legislation	341