INTRODUCTION TO AQUATIC SCIENCES

13. Week	Processing and Marketing of Fish

WEEKLY TOPICS (CONTENT)

Week	Topics
1. Week	Aquaculture in Turkey and world
2. Week	The role of fish in human consumption
3. Week	What is fish? Taxonomy of fish
4. Week	Aquatic Crustacean
5. Week	Water quality for aquaculture
6. Week	Introduction to marine fish
7. Week	Introduction to freshwater fish
8. Week	Live foods (microalgae, zooplankton and *Artemia*)
9. Week	Introduction to fishing techniques
10. Week	Fish transport
11. Week	Introduction to fish disease
12. Week	Introduction to fisheries economy
13. Week	Processing and marketing of fish
14. Week	Introduction to fisheries and aquaculture management

Approximately 14% of the animal protein consumed by humans comes from marine fisheries. However, there are tremendous variations between countries. Although Japan is increasing its beef consumption each year, in the past, 60% of their animal protein has come from the oceans. Table 1.1 shows the per capita consumption of fish in different parts of the world. Note that North Americans rank far down the list as fish eaters. However, we are becoming more conscious of our health and the requirements for well-planned nutrient intake. The consumption of seafood per capita for 1988 in the United States was the highest on record, and is expected to increase significantly as more new and higher-quality products become available.

It is known that fish and shellfish are excellent sources of high-quality proteins, comparable to those found in meat and poultry. Most raw fish is 16-24% protein. This can rise to as much as 35% in cooked fish. The high moisture content of molluscs results in slightly lower (i.e., 8–18%) protein levels. Table 1.2 compares the amount of certain meats, poultry, and fish required to provide 20 g of animal protein.

Marine fish and invertebrates form a substantial part of the human diet, both of the poor and of the wealthy. Their contribution to the world food resources is usually evaluated in terms of protein value. The ratio of the daily fish protein intake per capita to the total animal protein consumption ranged in the 1970s from about 6 in West Germany through 45 in Japan to about 70 in South Korea. In many developing countries, fish, in very simple forms of preparation and artisan preservation, mainly by drying, fermenting, and salting, supply most of the animal protein in the poor man's diet based on staple cereals. On the other hand, many species of fish and marine invertebrates are highly valued because of their superior sensory quality. Therefore, the well-to-do select for their cuisine rare, expensive species of fish, crustaceans, and esoteric mollusks. These seafoods provide the gourmet with exquisite sensory delight. Thus, there is a large and growing demand for fish and marine shellfish as a cheap source of valuable protein, lipids, and other nutrients for the people in need, as well as for the expensive species for the people who can afford. Actually the world catches lag substantially behind the demand in both groups.

The Processing, distribution and marketing of small pelagic fish from three fishing ports in Central Java, Indonesia [1998]

Clucas, I.J.
Basmal, J.

Abstract

This paper present the results of a series of censuses conducted at the three main landings for small pelagic fish in Central Java. The censuses aimed to gather information on all small pelagic fish leaving the landing on the census day and to build up a picture of the processing and marketing of fish from the landings. A total of 22 censuses were made, 6 at Tegal and 8 each at Juwana and Pekalongan and a great deal of information gathered. Landings at Tegal are relatively small and the processing industry is dominated by producers of dried/salted fish sending fish to distant markets not only in Java but into Sumatra. The landing at Juwana averages over 100 tons per day with a roughly 60 percent : 40 percent split between fresh and salted at sea fish. The processing activities are dominated by the production of pindang besek produced from the medium quality fresh fish. The good quality fresh fish may be sold to fresh fish traders who sell into the lucrative Jakarta market. It appears that all the salted at sea fish is destined for drying. The Pekalongan fish landing is probably the biggest in terms of weight of fish landed in Indonesia. Landing can reach over 350 to 400 tons per day. The landings are split roughly 70 percent : 30 percent between fresh and salted fish at sea. Processing is dominated by traders producing dried fish for distant markets (including exports) from the salted fish, but there is also very large industry for the production of pindan
g besek and many traders involved in fresh fish distribution to distance markets as well. Pindang besek from all three landings is particularly popular in Central and East Java whereas the other types of more heavily salted pindang are distributed further west. Jakarta seems to act as a magnet for good quality fresh fish and dried/salted fish is distributed mainly inland and to the most distant markets

[Research to find a safe processing of sea fish especially tuna fish for save consumption] [1999]

Supraptini
Aminah, N.S.
Lestari, E.W.
Nainggolan, R.
et al.

Abstract

Incidence of food poisoning are still happening. Result of a study as reported by the Directorate General of Communicable Disease Control, Ministry of Health, indicated that the poisoning are frequently caused by sea fish especially tuna fish (Auxis thazard). That's why Health Ecology Research Centre has done another research to find a safe way how to cook sea fish especially tuna fish for safe consumption. This reseach was conducted from June 1997 until March 1998. The samples consisted of tuna fish (Auxis thazard) and kembung fish (Rastrellinger spp) bought from fish auction in Cilincing and Cilincing market. The fishes were carried in an ice box to be analyzed in the laboratory and prepared in different cooking methods: fresh steamed fish, fish cooked in coconut milk, fried fish and grilled fish. Measurement of histamine levels were done by the mopper method and observation of microflora for fungi and bacteria, to know which way of cooking fish was related to the lowest histamine level. By analizing histamine level it was found that fresh steamed fish contained the lowest histamine (tuna 6,34 pmm, kembung 3,91 pmm), fish cooked in coconut milk (tuna 8,11 pmm, kembung 5,20 pmm), fried fish (tuna 14,86 ppm, kembung 13,18 pmm) and grilled fish (tuna 31,12 ppm, kembung 19,49 pmm). It has been proven that the histamine level of cooked fresh fish is less than 50 pmm (US Food and Drug Administration/FDA's, allowable concentration). The conclusion of this resea
rch : to cook fresh fish is the best and that fish must be handled carefully. The rotary histamin content was lowest in fresh steamed fish, followed by fish cooked in coconut milk, fried fish and grilled fish. The kinds of fungi found were: Aspergillus niger, Aspergillus ochraceus, Khamir and Rhizopus sp. In the cooked fish it did not find any pathogenic bacteria

Field trial on the utilization and marketing of shark meat, product, processing technology improvement and production cost calculation [1990]

Irianto, H.E.

Fawzya, Y.N.

Nasran, S.

Abstract

In order to utilize shark meat, experiments on fish ball, fish sausage, fish satay and fish floss processing were conducted. Consumer test on those products was carried out and the result showed that most of respondents gave a good response. A preliminary study on marketing of shark meat products was done by asking comment from owners and managers of supermakets, retailers, traveling traders, and canteens in DKI Jakarta, on the shark meat products. Comments were used for improving the technologies of fish ball, fish sausage, fish satay and fish floss processing. Some experiments are needed to improve the processing technologies with better product quality. The production cost of the improved processing technologies was calculated on the base of 1 ton raw material. The production cost of fish ball, fish sausage, fish satay and fish floss were Rp.713,910; Rp.1,654,526; Rp.650,433 and Rp.732,258 respectively. While their basic prices were Rp.1266/kg of fish ball, Rp.3069/kg of fish sausage; Rp.3966/kg of fish satay and Rp.4882/kg of fish floss.

Effects of brine concentration on shelf-life of hot-smoked tilapia (Oreochromis niloticus) stored at 4 C

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Authors	Yasemen Yanar, Mehmet Celik, Erhan Akamca
Publication date	2006/7/1
Journal	Food Chemistry
Volume	97
Issue	2
Pages	244-247
Publisher	Elsevier
Description	This work evaluated the effect of brine concentration on the shelf-life of hot-smoked tilapia (Oreochromis niloticus) stored at 4° C. The fish were brined in solutions of 5%, 10%, and 15% NaCl and unsalted fish were used as controls. The fish were then smoked, cooled and stored at 4° C. Oxidative rancidity measured by the peroxide value (PV), and thiobarbituric acid number (TBA) showed increases with the storage time and also as a result of the increasing salt content in fish muscle. Hot smoked tilapia can be stored safely under refrigerated conditions for over 35 days, and 5% brine was found to be optimal for storage.

Total citations   Cited by 106
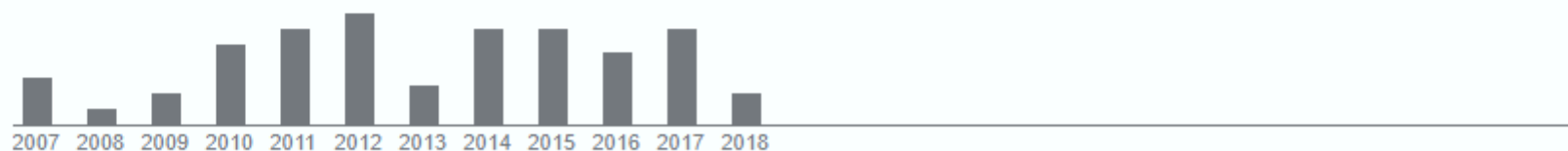
Scholar articles   Effects of brine concentration on shelf-life of hot-smoked tilapia (Oreochromis niloticus) stored at 4 C
Y Yanar, M Celik, E Akamca - Food Chemistry, 2006
Cited by 106   Related articles   All 4 versions

Challenges for Marketers in Sustainable Production and Consumption

Caroline Oates [1,*], Panayiota Alevizou [1] and Seonaidh McDonald [2]

[1] Management School, University of Sheffield, Conduit Rd., Sheffield S10 1FL, UK
[2] Aberdeen Business School, Robert Gordon University, Garthdee Road, Aberdeen AB10 7QE, UK

* Correspondence: Tel.: +44-114-222-3448

As one of the biggest issues facing today's global society, sustainability cuts across all areas of production and consumption and presents challenges for marketers who attempt to understand and incorporate sustainability in their everyday practices [1,2,3]. Evidence suggests there is increasing pressure from stakeholders around the social and environmental responsibilities of companies, including how products are sourced and manufactured, and marketed to consumers [4]. Recent events have illustrated unacceptable and unethical practices in production, for example unsafe working conditions in factories creating fast fashion items, prompting a media backlash against the companies involved [5]. One of the many challenges for marketers is to differentiate their sustainable brands from competing brands and to communicate this to consumers; and for consumers to recognise what makes a brand more sustainable [6,7]. The interface between companies and consumers in communicating sustainable production and consumption is reflected in contact points such as advertising, labelling and social media [7]. Such points are key providers of information concerning how products are sourced, manufactured and used [7]. However, consumers themselves are faced with a bewildering range of product choices and increasing information, which raises questions about links between sustainability in production and consumption.

For this Special Issue, we invited papers which address production, consumption, and/or the relationship between them in a context of sustainability. We accepted and published fifteen papers which form the content of this Special Issue. These papers are introduced below.

Effect of Dietary Betaine on Growth Performance and Body Composition of Oreochromis aureus Reared in Fresh and Sea WaterA Comparative Study [2006]

M. Ayce Genc
Nazmi Tekelioglu
Erdal Yilmaz
Arzu Ozluer Hunt
et al.

Abstract

This study was performed to examine the effects of betaine on growth performance and body composition of Oreochromis aureus reared in fresh and sea water comparatively. Fish was fed with diets containing graded levels of betaine (0, 1, and 2%) during 43 days in fresh water (Experiment I). Some fish cultivated for 43 days in fresh water conditions were transferred to the seawater tanks. Remaining fish were left in same fresh water tanks. In both conditions, fish were fed to same diets during 60 days (Experiment II). Regarding findings of Experiment I, betaine supplementation did not improve the growth of Oreochromis aureus. Final weight of fish fed the control diet (0% betaine) showed better performance compared to fish fed 1 and 2 % betaine (p<0.05). On the other hand, live weight gain, feed conversion ratio, and survival rates of all groups were found similar at the end of 43 days (p>0.05). In experiment II, final weights of control groups in both fresh and sea water conditions were relatively higher than that of the treatment groups for 60 day-feeding period. Fish reared with same treatment groups in both fresh and seawater were observed similar in terms of their final mean weights. Live weight gain, feed conversion and survival rates of fish fed control and 1 and 2 % betaine groups showed no difference in both fresh and seawater conditions (p>0.05).

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