

Importance of the cold chain logistics in the marketing process of aquatic products: An update study

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Abstract

The aquatic products are the term of the aquatic animal and plant products and their processed products produced by marine and freshwater fisheries in general. The marketability of aquatic products is an important issue in the development of aquaculture. In addition, processing and marketing facilities provide the great opportunities for employment within the aquaculture industry. Such products are prone to oxidation and bacterial contamination in organized transportation, which not only destroys the taste of products, but also poses a very serious threat to food safety. One of the essential classifications of cold chain logistics is the cold chain management of aquatic products. Cold chain planning is key to reducing aquatic products spoilage in the circulation, transport and marketing process. Cold chain logistics of aquatic products refers to system engineering in which cold or frozen aquatic products are stored in the specified low temperature environment before production, storage, transportation, sales and consumption. It is aimed to ensure quality and prevent damage to foods.

Keywords: Aquatic products, Logistic, Marketing, Cold chain, Cold chain logistic.

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Introduction

Nutritious and tasty aquatic products are susceptible to oxidation and bacterial contamination in planned transportation. This situation damages the taste of aquatic products and seriously threatens food safety. Cold chain logistics is the most important system in preventing these damages to aquatic products in the transportation (Li and Sun, 2015; Han *et al.*, 2020).

Fish is an essential nutrient in the human diet and is also present in the global aquatic product industry for consumers. The whole fish and fish cuts are available in a various kinds, such as canned, dried or cured products, fish oils, extracts or frozen processed partials and complete reformed and gelled by products (Frederiksen and Bremner, 2001).

The quality and safety of seafood is a major challenge facing its own seafood related industry in food sciences, and mostly in fisheries and aquaculture research departments. Many studies show that consumers' awareness about the food quality has increased. Fish and its by products, which are among the most internationally traded products, are at the forefront of food safety. Therefore, it is necessary to better the quality and safety. The flesh and skin of fish has wide range of characteristics. Quality deterioration in seafood can be caused by improper slaughter processes, dealing with raw materials during the processing and post-harvest times. Freshness is important in the quality of seafood, and the cold chain is important

to ensure freshness and overall quality (Warm *et al.*, 1998; Schubring, 1999a,b).

Since seafood is freshly used, the food quality is very high, but by time its quality will decline and become worsen for consumption. Maintenance and careful application of the cold chain is the main factor in reducing seafood quality. The cold chain technique in seafood industry is now a first priority which begins once the seafood is caught newly. By passing time the temperature of the seafood rises more above 1°C (from a standard and procurement, representing newly obtained seafood storage at 0°C and frozen seafood at -18°C) until it reaches the consumer from the sea, the cold chain is disturbed. The industries are dependent on each other by purchasing and selling intermediate goods from and to the other industries such as in order to process raw fish in the seafood processing industry. Firstly, the raw fish is prepared and then it is transfer to other industries such as the food service factory for the top consumption (Gibbard *et al.*, 1981; Frederiksen and Bremner, 2001).

Cold chain logistics refers to the specialized supply chain approach that provides low and acceptable temperature environment for a variety of fresh agricultural goods and consists of course of action like, multi-level processing, shipment, storehouse, distribution and retail of the end goods. Vegetables, fruits, meats and seafood can be examples of fresh edible products. The aim is to preserve the

quality of foods, reduce decaying and prevent contamination. Therefore, cold chain arrangements has made meaningful progress in this field. (Fu and Zhou, 2019).

Logistics

Management is the planned organization which implement on a complex productive system. In addition, it's a management of the flow of products between the point of origin and the point just before required until, the consumption of customers. The logistics of physical issues generally includes flow of information which is incorporated with, materials handling, production, packaging, checklist, transportation and reliability. Distribution logistics are to deliver the finished products to the customer as the main task. Distribution logistics are needed: the time, place, and quantity of production differ with the time, place, and quantity of consumption (Golnar *et al.*, 2013; Degirmenci *et al.*, 2017).

Cold chain logistic

The term “*cold chain*” implies the special logistics to transport frozen food which might disturb due to temperature changes during transportation. Therefore, cold chain means transportation of goods from producer to the consumer in cold environment, cold transport also carried out in order to ensure food quality and assent with reliability of the product on peak value. Cold chain logistics has been used to conserve the nutritive properties of food

until reaching the consumers without using any chemical additives. Cold chain have become widespread due to the increase in energy efficiency provided by technological developments. In short mean providing a constant temperature to a product that is not heat stable from the time it is produced until its usaged, are included in the cold chain logistics. Moreover, it's a science as it requires an understanding of the chemical and biological processes associated with product perishability. It is also a technology due to it relies on physical means to maintain temperature throughout the supply. It is a process as it requires the fulfillment of many tasks to manufacture, store, transport and monitor temperature sensitive products. For these reasons, the cold chain is accepted as a science, a technology and a process (Le, 2011).

This Technique is common in the food and other pharmaceutical industries. In pharmaceutical side, suitable temperature (and time at temperature) tolerances vary depending on the out product for shipping, but are generally 2 to 8°C (36 to 46°F). Cold chain for fresh produce cargoes is the most complex to operate. Because it is necessary to keep additional product-specific parameters such as measuring of air quality (carbon dioxide, oxygen, humidity etc). Cold chains are also common in some chemical shipments (Li and Sun, 2015).

Cold chain refers to a set of method applied to retain the product within a

certain low-temperature range from the time it is harvested until its consumption. Chain which is temperature-controlled, defines uninterrupted frozen production, storage, distribution and activities together along related equipment and logistics, which maintain the required low-temperature range. It helps to preserve the products and extend their shelf life. Fresh agricultural produce, seafood, frozen meat, photographic film, pharmaceutical products are example of these products. Such products are sometimes called cool cargo stuff during transport and transient storage. Variet other goods and merchandise, cold chain goods are liable to spoil always during transport to the destination, even while kept temporarily in cold stores and therefore commonly preferred to as cargo during its entire planned cycle (Golnar *et al.*, 2013; Li and Sun, 2015; Li and Yu, 2019; Seung and Kim, 2020).

Cold chain logistics in the marketing process of aquatic products

Aquatic life and its end products produced by saltwater and freshwater fishing are called aquatic products. One of the essential complementary functions of all food production systems is the handling, processing and marketing of fish products. In order to control and predict the properties of fish and fish by products under a wide variety of conditions, fish technologists try to obtain general rules by conducting various observations and experiments. Safety and quality have

been two main issues in conducting these studies and are often expressed in measurable ways. The marketability of fish products is an important issue in the development of aquaculture, and processing and marketing offer valuable opportunities for employment in the aquaculture industry. In the aquaculture industry, it is vital to develop cold chain maintained and introduce advanced ideas and technology in time to gain market advantage (Golnar *et al.*, 2013; Li and Yu, 2019; Seung and Kim, 2020).

Conclusion and suggestion

The seafood industry support the contribution of the intermediate industries placed between the seafood industry and the destinations. If the products from an intermediate industry are in critical input, but a big amount of them is imported from other countries, the industry may constitute a bottleneck that protects it from maximizing its influence along the supply chain. In the matter, if policies carry out a policy that boosts domestic industrial output, and reduce the overall imports then effect of the seafood industry will increase well. As we get, food service and food and beverage are the top two industries on which seafood processing has the largest global impact because these two industries are the major users in the supply chain of the processed seafood. Fishery executive are anxious with the economic factor of a change in the output of raw fish. Cold chain logistics is the first priority for good aquatic products.

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