

# Applications of aquatic invertebrate and fish enzymes in the food sector.

Janak Shahidi\*

Department of Biochemistry, Memorial University of Newfoundland, Canada

## Introduction

The use of enzymes in the manufacture, processing, and improvement of diverse food items is the focus of the intriguing and crucial topic of food enzyme technology, which falls under the umbrella of food science and technology. Enzymes are biological catalysts that are essential in regulating and accelerating the countless biochemical processes that take place in living things, including those involved in food generation and digesting. As a result, the use of enzymes in the food industry has transformed the sector and created exciting new opportunities for enhancing food quality, security, and sustainability [1].

The natural catalysts that power many biological processes in living things are enzymes. Humans have traditionally used these biologically active chemicals to modify and improve food products. Aquatic invertebrate and fish enzymes have recently become more well-known in the food sector due to their distinctive qualities and uses [2].

Protease enzymes from fish and aquatic invertebrates offer a wide range of uses in the processing of seafood. These enzymes help break down collagen and proteins, improving the efficiency of fish scaling, deboning, and filleting. These enzymes decrease waste and raise the overall output of fish products by making it easier to separate edible parts from bones and skin. Enzymes from fish and aquatic invertebrates can be used to improve the texture of seafood items. Muscles in fish and seafood can be softened and made tender by using enzymes like cathepsins and collagenases. This is especially useful for giving items like marinated fish and surimi-based seafood analogs a desirable texture [3].

The use of aquatic enzymes in the processing of food is consistent with the sustainability movement as a whole. By utilizing the by-products of fish and seafood processing, such as heads, scales, and skin, properly, businesses not only minimize waste but also help to create a more ecologically friendly and sustainable food industry. Some fish enzymes, such lipases, are essential for the breakdown of lipids and help fish create its distinctive tastes. Food producers can produce

distinctive and genuine fish-based goods that satisfy consumer preferences for a variety of flavors and experiences by utilizing these enzymes [4].

The fermentation methods used to make aquatic-based delicacies like fish sauce, fish paste, and shrimp paste heavily rely on enzymes. These enzymes aid in the protein breakdown and heighten the complex, umami-rich aromas that distinguish these classic Asian sauces [5].

## Conclusion

Enzymes from fish and aquatic invertebrates have a wide range of promising applications in the food industry. The food sector is utilizing these organic catalysts to boost food safety, flavor innovation, and sustainability in addition to increasing the efficiency of seafood processing. There are probably going to be other more fascinating uses that come forth as enzymology develops, which will change how we digest and savor foods with an aquatic base even more.

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\*Correspondence to: Janak Shahidi, Department of Biochemistry, Memorial University of Newfoundland, Canada, India. Email: shahidi@janak.ca

Received: 27-Sept-2023, Manuscript No. AAJFSN-23-117526; Editor assigned: 30-Sept-2023, PreQC No. AAJFSN-23-117526(PQ); Reviewed: 14-Oct-2023, QC No AAJFSN-23-117526; Revised: 19-Oct-2023, Manuscript No. AAJFSN-23-117526 (R); Published: 26-Oct-2023, DOI:10.35841/aacnt-6.5.202

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