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SEA FOOD PROCESSING BY USING A BIOTECHNOLOGICAL METHOD

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Abstract

Amongst all the environmental fresh water, biological communities have been essential for supporting life on the earth. People depend on fresh water for commercial and domestic usage. Which incorporate drinking water, agribusiness, transportation, and vitality generation, mechanical, procedures, waste transfer and fisheries. Fisheries business development promises good future. Increase the growth of the fisheries or sea food development with the help of biotechnological tread. The bio-technological process for commercial exploitation of living organisms use this fish food processing by using bio-technology techniques we give to support the economic development of the people.
Keywords: Fish silage, Fish protein, Bio-technology method, biological communities etc.

Introduction:

Application of biotechnology to fish processing and product development holds a good promise future. Application of biotechnology in fish processing and product development amounts to judicious use of hydrolytic enzymes – "fish proteases" either endogenous or derived from micro organism to get the desired selective degradation of peptide bonds in protein molecules. Biotechnology is the commercial exploitation of living organisms or their components E.g. Enzymes.

Application of fish proteases in sea food industry:

Fish protein hydrolysate:

Fish protein hydrolysate is produced by transformation of inexpensive pelagic fish and fish processing wastes to a protein concentrate which can be use in food and other application rather than a lower value animal feed. Fish hydrolysate can be produced from fish protein by process employing proteolytic enzymes of vegetable of microbial origin. Proteinase treatment of fish protein to break down the protein into smaller sized peptides. By controlling the condition of the process, end products of desired properties can be obtained.

The commercial interest in hydrolysate is centered on its use in milk replacer. By using fish protein to replace the milk protein in animal feeds, it is possible to produce a cheaper feed for young calves, lambs and baby pigs. The bitter taste of fish hydrolysate limited its use for human consumption.

Fish silage:

Fish silage may be described as a liquid product made from fish or parts of fish and acid. Liquefaction is caused by the action of enzymes naturally present in the fish and is accelerated by the acid, which creates the right condition for the enzymes to break down the tissues and limit the growth of spoilage bacteria. Organic acids are mostly used for silage production from fish.

In the beginning, silage production only made use of inorganic acid such hydrochloric acid and sulfuric acid. Although these acid. Ware relatively in expensive, they were not convenient because their preservative action first come into effect when the pH value is down to about 2. The feed stuff, to be had de-acidified before it was fed to the animals. The preservation effect of many organic acids such as formic acid becomes active at higher pH level (pH 4). In recent years formic acid has therefore increasingly being used in silage production.

The rate of liquefaction is temperature dependant. Digestive proteases from fish have maximal activity at 45 to50c. It has being demonstrated that silage can be stored at least 1.5-2years but it is necessary to add antioxidants to prevent oxidation off the fat.

Use of acid can be avoided by producing lactic acid biotechnologically by adding sugar or molasses along with lactobacilli to fish or fish waste. Lactobacilli convert sugar into lactic acid which preserves the fish and creates favorable conditions for the silage. In addition to acid, some type of lactobacilli produces other substances (antibiotic) which increase their preservation effect. The bacilli are also considered to prevent oxidation of fats. Silage produced by lactobacilli has not yet reached production. Bio-fermented silage show better growth in chicken and prawns than the feed made from acidic silage produce in the conventional manner.

Biotechnological method:

The desire to produce Chitin with more consistent physico-chemical properties necessary the use of minder treatments for removing some of components associated with shell, such as proteins. Various proteolytic examples-(Chimotrypsin, papine and bacterial proteapsinse) of the three proteases tested, chymotrypsin was found to most effective, achieving a degree of deproteinization comparable with the chemical approach using

NaOH. The optimum condition established with the response surface methodology approach using chymotrypsin were pH 8 for 72 hr yet 40c and enzyme substrate ratio of 7:1000 (w|w).

Chitosan may also be prepared from chitin using deacetylating enzymes from microbial sources. The preparation of chitosin from chitin by biological method may be accomplished either,`

1) By fermentation where by cultures of chitin deacetylase producing microorganisms are inoculated in media containing chitinous substrate.
2) By a direct treatment of chitin polymers with extract of microbial chitin deacetylase enzyme.

Of the different strains studies was found to be the most efficient in producing chitosan from chitin. Some problems associated with the production of chitosan by fermentation include low yields and variation with the age of the culture. On the other hand, Chitosan production by fermentation has the advantage of recovering a product with a very low degree of acetylation (5-10%). It is to be expected that appropriate manipulation of processing procedures and control over biosynthesis could alleviate some of the problems with yield, degree of acetylation and wide variation in molecular weight. Thus, the added advantage with the use of microorganisms in chitosan production is the potential that exists for genetic manipulation of the organisms.

Current methods for preparing commercial chitin and Chitosan result in products with inconsistent properties. Biological methods for preparing these products are milder and thus relatively more capable of recovering products with more consistent properties. With the advances in biotechnology, it is to be expected to manipulation to that the biological approaches would be relatively more amenable to manipulation to result in improvements in yields, as well as control variation in the products recovered from various sources.

Objectives:

1) To determine the water quality of these water bodies in view of the discharge of industrial wastes was presence of toxins.
2) To investigate the organs of the fish which is not affected by toxins.
3) To determine the water quality with the help of environmental research that has adverse impacts on the biotic components.
4) To increase the sea food processing development by using biotechnology technique.
5) To increase the economic sources of the people with the help of this biotechnique.

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