



# ***FISH PROTEIN CONCENTRATE***

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# *INTRODUCTION*

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- Fish protein concentrate is a stable product suitable for human consumption. Prepared from whole fish or other aquatic animals or plants thereof.
- It is increased by the removal of water and in certain case of oil, bones and other materials.
- Traditionally dried or other preserved product do not fall under the guideline of FAO/WHO/UNICEF protein advisory group.
- The FAO adopted the term Fish Protein Concentrate” in 1961.
- However, in 1967, the FDA, in a revised standard, changed the name of the product to Whole Fish Protein concentrate.



# *DEFINITION OF FPC*

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- Various definitions have been proposed for Fish Protein Concentrate all of which largely cover the same ground.
- One difference is that some forms are prepared from whole fish, some from the edible portion of fish and other from fish scraps and trimming.
- Synder looked at a broad concept ".....a product variously known as fish flour, edible fish meal or fish protein concentrate is generally considered to be dehydrated, partially or almost completely defatted product which may not be flavorless or odorless.



# *CLASSIFICATION OF FCP*

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- An FAO Specification (Fishing News International 1962) proposed three types of Fish Protein Concentrate.
- Type-A: It is an deodorized, low fat form, containing less than 0.75% lipids.
- Type-B: It is an extract fish meal containing not more than 3% lipids.
- Type-C: It is a fish meal prepared under sanitary condition.
- All three types have to be free of Enterococci, Salmonella/ Shigella, Coagulase - +ve Staphylococci, and Pathogenic anaerobes.

# ***TYPE-C FISH PROTEIN CONCENTRATE;***



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- Type-C protein concentrate is a fish meal that has been prepared under sanitary conditions and meeting the FAO requirement for freedom from pathogenic organism.
- As prepared commercially ,this product would be considerably lower in cost than those prepared by more sophisticated means.
- They would normally have a strong flavor and odor that is usually limit their acceptance even when added to food at a low level.
- However not every one object to those fishy odor and flavor.



# *PROCESSING*

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Processing consist of-

- Dressing
- Cooking
- Separation of oil by pressing and mincing of cooked flesh
- Drying in a tunnel drier at a temperature of 60- 70 degree Celsius and
- Packaging in a tin container preferably under carbon dioxide or vacuum.



## *Contd.....*

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- Alternately, separated meat/ mince may be cooked and dried.
- The addition of tamarind or turmeric powder to the mince at the appropriate of processing the sensory quality of the product.
- Smoking of dried mince retards the development of strong rancid odors and flavor.
- Compare to unprocessed raw mince or fish fillet, cooked one has a better drying rate and dries to the require moisture level quickly.



# *GENERAL CONSIDERATION FOR FPC PROCESS*

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- There are five main technical objectives-
- First is to removed water.
- Second is to removed all or most of the fish lipid.
- Third is to retain the nutritive value of the protein during process.
- Fourth is to ensure the safety of final product.
- Fifth is the economic objective of manufacturing.



# REQUIREMENT FOR FISH PROTEIN CONCENTRATE

<b>Characteristics</b>	<b>FPC</b>
Moisture,% by mass , maximum	10
Crude protein on dry basis	70%
Fat on dry basis	0.75%
Mercury , mg/kg, maximum	0.5
Acid-insoluble ash on dry basis	20%
PER	Not less than 2.5
Lead, mg/kg, maximum	2.5



# ***NUTRITIVE VALUE***

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- The value of FPC as a protein supplement lies in the high quality of amino acid.
- It is especially rich in lysine, methionine, and tryptophan as compare with most vegetable protein.
- FPC has a high protein efficiency ratio, and can as well enrich the quality of vegetable protein to raise the protein efficiency ratio.

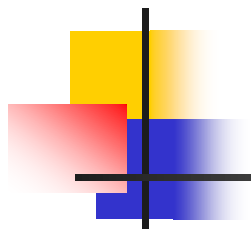


# USES

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It is mainly used for-

1. Eradication of protein deficiency diseases, like Kwashiorkor.
2. To be incorporated in different preparations like cabbage vegetable curry, curried fish balls, fish cutlets etc.



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**THANK YOU**