

Seafood Processed Products

Fish oil

- **Fish oil** is oil derived from the tissues of oily fish.
- Fish oil is recommended for a healthy diet because it contains the omega-3 fatty acids, eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA), precursors to eicosanoids that reduce inflammation throughout the body.
- Fish do not actually produce omega-3 fatty acids, but instead accumulate them from either consuming microalgae that produce these fatty acids, as is the case with fish like herring and sardines, or, as is the case with fatty predatory fish (e.g. mackerel, trout, tuna), by eating prey fish that have accumulated them.

Benefits

- Taking fish oil (in any form) can help regulate cholesterol in the body, because fish oil has high levels of omega-3 fatty acids.
- However, the preferred source of Omega 3 should be from the fish's body, not the liver. The liver and liver products (such as cod liver oil) of fish and many animals (such as seals and whales) contain Omega-3, but also the active form of vitamin A. At high levels, this form of the vitamin can be dangerous.
- Fish oil may reduce the risk of depression, and importantly, suicide risk.
- Fish oil may help protect the brain from cognitive problems associated with Alzheimer's disease.
- Omega-3 fatty acids could also help delay or prevent the onset of schizophrenia.
- The American Heart Association recommends the consumption of 1g of fish oil daily, preferably by eating fish, for patients with coronary heart disease.
- Several studies report possible anti-cancer effects of *n*-3 fatty acids found in fish oil (particularly breast, colon and prostate cancer).

Fish sauce

- **Fish sauce** is a condiment that is derived from fish that have been allowed to ferment.
- It is an essential ingredient in many curries and sauces.
- Fish sauce is a staple ingredient in Vietnamese, Thai, Cambodian, and Filipino cuisine and is used in other Southeast Asian countries.
- Some fish sauces (extracts) are made from raw fish, others from dried fish, some from only a single species; others from whatever is dredged up in the net, including some shellfish; some from whole fish.
- Some fish sauces contain only fish and salt, others add a variety of herbs and spices.
- Fish sauce that has been only briefly fermented has a pronounced fishy taste, while extended fermentation reduces this and gives the product a nuttier, cheesier flavor.
- Southeast Asian fish sauce is often made from anchovies, salt and water, and is often used in moderation because it is intensely flavoured.

Shrimp paste

- **Shrimp paste** or **shrimp sauce**, is a common ingredient used in Southeast Asian and Southern Chinese cuisine.
- It is made from fermented ground shrimp, sun dried and then cut into fist-sized rectangular blocks.
- It is not designed, nor customarily used for immediate consumption and has to be fully cooked prior to consumption since it is raw.
- .Shrimp pastes vary in appearance from pale liquid sauces to solid chocolate-colored blocks.

Fish meal

- **Fish meal**, or **fishmeal**, is a commercial product made from both whole fish and the bones and offal from processed fish.
- It is a brown powder or cake obtained by rendering pressing the whole fish or fish trimmings to remove the fish oil.
- Fish meal differs from fish hydrolysate in that the hydrolysate form has the oil and the protein included in the product.

Fish emulsion

- **Fish emulsion** is a fertilizer emulsion that is produced from the fluid remains of fish processed for fish oil and fish meal industrially.
- Since fish emulsion is naturally derived, it is considered appropriate for use in organic horticulture.
- In addition to having a typical N-P-K analysis of 5-2-2, fish emulsion adds micronutrients.

Fish hydrolysate

- **Fish hydrolysate**, in its simplest form, is ground up fish carcasses.
- After the usable portions are removed for human consumption, the remaining fish body, (which means the guts, bones, cartilage, scales, meat, etc.), is put into water and ground up.
- Some fish hydrolysate is ground more finely than others so more bone material is able to remain suspended.
- Enzymes may also be used to solubilize bones, scale and meat.

Surimi

Wet concentrates of proteins is known as surimi

- Surimi is a crude myofibrillar protein concentrate prepared by washing minced, mechanically deboned fish muscle to remove sarcoplasmic constituents and fat, followed by mixing with cryoprotectants (usually polyols) to prevent protein denaturation during frozen storage.
- Surimi is considered to be an 'intermediate' product because it is usually further processed to make various kamaboko products and seafood analogs, such as imitation crab meat and lobster.
- For economic reasons, surimi is mostly prepared from under-utilized marine fish.