FREQUENTLY ASKED QUESTIONS

1. **Define fish?**

Ans). Fish are defined as aquatic vertebrates that use gills to obtain oxygen from water with fins consisting of a variable number of skeletal elements called fin rays.

2. **What are the different types of spoilages in fish?**

Ans). The Spoilage of fish begins as soon as fish dies. In raw fish, spoilage takes place mainly due to three reasons viz.,

1) Enzymic action

2) Microbial action

3) Chemical action

3. Why fish spoils more rapidly as compared to beef, mutton and poultry?

Ans). Fish spoiles more rapidly because fish contains higher amounts of polyunsaturated fatty acids, more microbial count in the gut, a high post mortem pH in the flesh (typically greater than 6.0), the presence of non-protein-nitrogen (NPN) in large quantities, higher water activity and the presence of trimethylamine oxide (TMAO) makes it more susceptible for rapid degradation.

4. **Name different factors affecting spoilage of fish.**

Ans). The various factors affecting the rate of spoilage in fish are- kind of fish, condition of the fish when caught, kind and extent of contamination of the fish flesh with bacteria and storage temperature.

5. **Define autolytic spoilage of fish?**

Ans). Autolytic spoilage is defined as the spoilage caused due the action of endogenous enzymes.

6. **What is Belly bursting?**

Ans). Enzymic spoilage causes belly bursting in fish, especially during a period of high food intake. These fishes will have a large content of digestive enzymes in the digestive tract. Such fish will degrade quickly and spoil easily soon after they are caught. In the dissolve gut components, bacteria proliferate and produce gases such as CO_2, and H_2. This gas production leads to belly bursting after short storage period. Keeping the fish live for some time will retards this.\

7. **What are the reasons for brown discolouration in fish?**

Ans). Brown or yellow discoloration is caused by the reaction of the protein or the amino acids with product of lipid oxidation. Brown discoloration is observed in verity of processed products including white pomfret, sardine, jack mackerel, salted shark, marine eel, etc. Discoloration due to protein – lipid browning is greater in fatty fish than lean fish.

8. **Name different end products of pseudomonas spoilage in fish?**

Ans). The pseudomonas have ability to produce H_2S, reduce Trimethlyamine oxide (TMAO) to Trimethlyamine (TMA) and convert urea to ammonia. Many volatile sulphur compounds.

9. **What is scombroid fish poisoning?**

Ans). Microbial spoilage of fish produces the toxin, histamine in certain fishes. Histamine poisoning or scombroid fish poisoning is very frequent in many countries. Scombroid fishes and other dark muscle fishes contain high level of free amino acid, histidine in their muscle. During spoilage histidine is converted into histamine by bacteria. Over fifty species including popular species such as Tuna, Bonito, Mackerel, Blue fish, Dolphin fish (*Mahi mahi*), sardine, carangids, herring, and anchovies were shown to be potential threat of histamine poisoning.

10. **How Non-indigenous bacterial spoilage occurs in fish?**

Ans). They occur in seafood as a result of contamination. The source include polluted aquatic environment, sewage, excreta from animals, birds, human being, workers handling the material as well as the surface

and environment where the seafood is processed.

11. **Why fish develops rancid flavour rapidly compared to other meat?**

Ans). Fish lipid is characterized by a high level of polyunsaturated fatty acids (PUFA) and hence undergoes oxidative changes. With fatty fish in particular, fat oxidation give rise to problem such as rancid flavour and odor as well as discoloration.

12. **What is the difference between autooxidation and Lipid hydrolysis?**

Ans). Lipid oxidation is by two process (a) Auto oxidation – action of O_2 on the unsaturated fatty acids and (b) Lipid hydrolysis – an enzymatic hydrolysis with free fatty acids (FFA).

13. **Name different methods used to assess fish quality.**

Ans). The various methods are used to determine the quality of fish. These can be classified into sensory and instrumental methods. The latter comprise chemical, physical and microbiological methods.

14. **What are the different preservation techniques of fish?**

Ans). The various preservation techniques used for fish preservation are freezing, drying, salting, smoking, irradiation, active packaging and canning.

15. **What is the principal of packaging in fish preservation?**

Ans). Innovative packaging technologies based on manipulating the gas-exchange characteristics of packaging material to control the oxido-reduction potential have been developed and applied to preserve and extend the storage stability of fish and seafood products.