F AQs :

1:What is preservation of foods?

Food preservation involves preventing the growth of bacteria, fungi (such as yeasts), or other micro-organisms (although some methods work by introducing benign bacteria or fungi to the ***food***), as well as retarding the oxidation of fats that cause rancidity.

2:What are Bacteriocins?

Bacteriocins are antibacterial proteins produced by bacteria that kill or inhibit the growth of other bacteria. Many lactic acid bacteria (LAB) produce a high diversity of different bacteriocins. Though these bacteriocins are produced by LAB, found in numerous fermented and non-fermented foods, nisin is currently the only bacteriocin widely used as a food preservative. Bacteriocins are inhibit the growth of similar or closely related bacterial strain(s). They are typically considered to be narrow spectrum of antibiotics.

3:What are the impotence of LAB in human life?

Lactic acid bacteria have a major potential for use in biopreservation because they are safe to consume and during storage they naturally dominate the microflora of many foods.

Lactic acid bacteria are therefore excellent ambassadors for microbial world. They are not only of major economic significance, but are also of value in maintaining and promoting human health.

4:Mention the Properties of Nisin?

Nisin is a polycyclic anti bacterial peptide with 34 amino acid residues used as a food preservative and it contains the two uncommon amino acids. The unsaturated amino acids originate from serine and threonine. Nisin is produced by fermentation, using the bacterium *Lactococcus lactis*. In the food industry, it is obtained from the culturing of *L. lactis* on natural substrates, such as milk or dextrose and is not chemically synthesized.

5:Application of nisin?

Nisin is used in processed cheese, meats, beverages etc, during production to extend their shelf life by suppressing Gram-positive spoilage and pathogenic bacteria.

Nisin is popularly used in dairy products, milk, aquatic products, poultry, meat products, plant protein, fast food, baking food, fruit juice, canned food, cosmetics, beverage drinks, health care products and medicines. It helps by decreasing the time taken for sterilization, lowers temperature during food sterilization, improves food quality, lessens damage to nutrition, and prolongs storage time of food material.

6:The Production of Lactic acid:

Lactococcus lactis, originated from the lactic industrial products have been still, extensively studied for their commercial potential, but that strain isolated from plants has been given less attention in sugar mills. *Lactococcus lactis,* like many other lactic acid bacteria, are involved in producing lactic acid.

7:What is manolactic fermentation?

The organic acids existing in wine which are mainly malic and tartaric acid can be easily metabolized by Lactobacilli. Malic acid is converted to lactic acid and carbon

dioxide, this phenomenon is called manolactic fermentation which is extensively used for fruit wines maturation.

8: What is fermentation?

Fermentation is a process in which naturally-occurring lactic-acid bacteria (LAB) break down carbohydrates, generate lactic acid and carbon dioxide, and make food more easily digestible.

9:Write short note on Sulfur dioxide and sulfites?

Sulfur dioxide and sulfites are perhaps the most important inorganic chemical preservatives. Sulfites are more effective against molds than against yeasts and are widely used in the preservation of fruits and vegetables. Sulfur compounds are extensively used in wine making and, as in most other instances when this preservative is used, much care has to be exercised to keep the concentrations low in order to avoid undesirable effects on flavor. Oxidizing agents such as nitrates and nitrites are commonly used in the curing of meats.

10: What causes fruits and vegetables spoilage?

There are a variety of reasons including fruits or vegetables that were:

- over-ripe
- had "bad" spots, already beginning to decay
- blossom ends (pickling – especially important!) weren't removed
- improperly stored
- stored too long
- immature – picked too early so not enough sugar/starch development

11: What is pickled meat

Meat may be preserved by dry curing or with a pickling solution. The ingredients used in curing and pickling are sodium nitrate, sodium nitrite, sodium chloride, sugar and citric acid or vinegar.

12: Explain what is Potassium sorbate and its application in foods?

Potassium sorbate is used to inhibit moulds and yeasts in many foods, such as cheese,wine,yogurt, dried meat,apple cider, soft drinks and fruit drinks. Potasium sorbate will produce Sorbic Acid once its dissolves in water and it is widely used preservative in the world. Effective up to pH 6.5, maximum level allowable by law is 0.1%. In many food products, Sorbate & Benzoates are used together for greater protection against wider variety of microorganisms. Benzoate effective only below pH 4.5, but Sorbate is effective even with pH 6.5. If preservatives are used in foods, must be declared on the list of ingredients on the label along with short explanation of its use.

13: why we should preserve food?

Some foods are seasonal and highly perishable. They are having very short shelf life like one or two days. So food preservation maintains safe & nutritious foods for an

extended amount of time. Food preservation prevents food spoilage until food can be consumed. Food preservation offers the opportunity for a wide variety of foods year-round .it is economical.

14: **Write in brief about the use of Lactobacilli in Dairy Industry?**

Lactic Acid Bacteria (LAB) especially Lactobacilli are responsible for the formation of the micro flora of most dairy products especially of cheese and fermented milk. Lactobacilli are important for flavor, color and texture of dairy products through acidification due to lactic acid and of the metabolism of milk proteins. The most commonly used species in dairy products are *L.casei, L. helveticus, L. rhamnosus, L. lactis, L. curvatus* and *L. plantarum*. Furthermore, Lactobacilli are incorporated into yogurt, cheese and fermented milk as probiotics due to their beneficial effect especially on acute and chronic inflammations of the gastrointestinal tract. Addition, due to the production of bacteriocins Lactobacilli also help on the preservation of dairy products.

15: Explain in brief how Lactic acid bacteria helpful in fermentation process?

. LAB refer to a large group of beneficial bacteria that have similar properties and all produce lactic acid as an end product of the fermentation process. They are widespread in nature and are also found in our digestive systems. Although they are best known for their role in the preparation of fermented dairy products, they are also used for pickling of vegetables, baking, and winemaking, curing fish, meats and sausages. Additional characteristic flavours and aromas are often the result of other products of lactic acid bacteria.