**Classification of Foods**

Classification is the act of systematic arrangement of information into groups or categories according to some principles. An important property in which the food processor is interested is the shelf life and pH value.

**Classification of food on perishability**

All foods differ with respect to their keeping qualities. The shelf life of food is majorly depend on its water content, generally more the water content lower its shelf life. Food processor classified all foods into three categories as follows;

1. **Stable foods**

Those foods that can be stored for a long period under proper conditions with no spoilage are called stable foods.

The time range minimum of three month to as long as three years. The food spoilage agents do not readily spoil the naturally stable foods because it has low moisture below 15% which make them stable. Examples: sugar, dry cereals, tamarind, honey, legumes, breakfast cereals and pastas.

1. **Semi-perishable foods**

Foods that can be kept fit for human consumption for a fairly long period with little care in handling and storage are called semi-perishable. The shelf life ranging from few weeks to a few months. The moisture content of natural semi-perishable foods ranges between 60-90%. The semi-perishable foods are often subject to spoilage by autolysis and growth of undesirable microbes especially moulds. Examples; ginger, garlic, onions, potatoes, fried snacks and some cheese varieties.

1. **Perishable foods**

The foods have shelf life of a few hours to a few days under modest storage conditions. The moisture content in these foods usually ranges from 80 to 95%. Storage life of such foods can be increased up to 4 weeks by storing at low temperature like in the household refrigerator. Examples: fish, meat, milk, fruits and vegetables.

**Classification of food on basis of  PH value**

PH value of food affects the rate of microbial survivors during storage, heating, drying, and other form of processing. This classification provides following information;

1. The possible spoilage organisms,
2. Food poisoning microorganisms, and
3. The choice of heat treatment

According to this criteria food is classified into four categories.

1. **High acidic food**

The foods having acidic value less than 3.7 are fall in this category. This group mainly includes citrus fruit and fermented pickles. Mostly spoilage microorganisms are yeasts and moulds but boiling water processing is enough to kill these spoilage agents. However aciduric bacteria create problem in storage but these are less heat resistance so can be removed easily by providing any heat treatment.

1. **Acidic foods**

The foods having acidic value between 4.5 and 3.7 are fall into this category. This group includes guavas, oranges, mangoes, pineapples, apples, tomatoes, and most other fruits. Naturally occurring enzymes and non-spore forming bacteria are mostly responsible for their spoilage. These spoilage agent are easily destroyed at normal processing temperature of 1000 C. Food poisoning microorganisms usually do not grow in acid foods so no toxins are produced.

1. **Medium acid foods**

This group includes foods that fall within pH range of 5.0 to 4.5. Examples are most meat and vegetable mixes with tomatoes soup, sauces and other ingredients that produce partially acidic products. These are also subject to same heat treatment like acidic foods.

1. **Low acid foods**

Foods with a pH value of 5.0 and above are grouped into this category. Most vegetables (okra, carrots, peas and green vegetables), maize, meat, milk, eggs, and fish fall in this group. Egg white of freshly laid egg has a pH of 8.0.

The medium and low acid foods are spoiled by naturally occurring enzymes, mesophilic spore-forming bacteria, thermophilic spore formers and non-sporing organisms. Since spores are very heat resistance and can germinate at the pH of these foods, hence high temperature treatment is required to destroy these organisms and extend the shelf life.

**Thermophilic bacteria:** A **thermophile** is an organism—that thrives at relatively high temperatures, between 41 and 122 °C (106 and 252 °F). Many **thermophiles** are archaea.

**Mesophilic bacteria:** Mesophilic are microorganisms which grow at moderate temperatures between 20 °C and 45 °C and with an optimum growth temperature in the range of 30–39 °C.

 **Psychrophilic bacteria: Psychrophilic** or cryophilic are extremophiles organisms that are capable of growth and reproduction in low temperatures, ranging from −20 °C to +10 °C. They are found in places that are permanently cold, such as the Polar Regions and the deep sea.