

Preservatives

A preservative may be defined as any substance that prevent or retard deterioration when added to food and drinks. It may inhibit or retard changes in appearance, odour, flavor and nutritive value.

They inhibit the contamination/ growth of microorganisms such as yeasts, bacteria, molds or fungi in foods and drinks..

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Preservatives are classified as Class I & Class II.

Class I preservative belongs to natural sources which also exhibit preservative effects in foods. Example of Class I preservatives are sugar, salt, vinegar, honey, spices, edible oils etc.

Class II preservatives are obtained by chemical derivation of compounds. Sorbates, benzoates, propionates and sulfites are used broadly class II preservative in fruit processing.

Benzoic acid

Benzoic acid and its sodium salt (sodium benzoate) is permitted to the maximum level of 0.1%.

Benzoic acid and its sodium salt are most suitable for preserving foods and beverages that naturally are low in pH (2.5 – 4.0).

Sodium benzoate is more effective against yeasts and bacteria than molds.

The narrow pH of its activity limits wider application of this preservative in foods.

These are used to preserve carbonated @ 0.03-0.05% and non-carbonated beverages @ 0.1%, fruit pulps and juices.

As an antimicrobial agent, benzoate acts synergistically with sodium chloride, sucrose, heat, carbon dioxide, and sulphur dioxide.

Sorbic acid

Sorbic acid is one of the widely used preservatives in the world. Sorbic acid and sorbate can be used to suppress yeasts during lactic fermentation. Sorbates exhibit inhibitory activity against a wide spectrum of yeasts, molds and bacteria including most food borne pathogenic microbes

The inhibitory activity of sorbates is pH dependent.

Usage rates of sorbates in fruits are low, being 0.025-0.075% in fruit drinks and 0.1% in beverage syrups.

Potassium sorbate is used where high solubility is desired. Sorbates are frequently used in, carbonated and noncarbonated beverages.

Salts of sulphite, bisulphite and metabisulphite

Being more effective against molds than yeasts, sulphur dioxide has found wide use in the fermentation industries.

Salts of sulphite, bisulphite and metabisulphite is decomposed by weak acids such as tartaric, citric, malic to form potassium salt and sulphur dioxide, which is liberated from potassium sulphurous acid with water, when added to the fruit juice or squash.

The undissociated sulphurous acid molecule prevents the multiplication of yeasts, while the sulphurous acid ion inhibits the growth of bacteria.

Glucose, aldehydes, ketones, pectin and breakdown products of pectin, etc., which are found in fruit juices, combines with sulphur dioxide reducing the effectiveness of sulphur dioxide.

It cannot be used in the case of some of the naturally coloured juices like phalsa, jamun, pomegranate,