

Food Preservatives and their harmful effects

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Abstract- Every living organism needs food to live. Foods have many nutrients such as carbohydrates, fats, proteins, vitamins, or minerals. These nutrients present in food are ingested and assimilated by an organism to produce energy, stimulate growth and maintain life. Food chemistry is the study of chemical processes and interactions of all biological and non-biological components. The food has limited shelf life, in order to increase the shelf life and maintain the quality certain preservatives are used these preservatives may have some harmful effects so if possible, and foods without preservatives may be used

Index Terms- Preservatives, Food, Side effects, Allergy

I. INTRODUCTION

In many parts of world Food is being stored in houses for emergency. In addition to basic food items, people also store frozen or preserved garden-grown fruits, vegetables and freeze-dried or canned produce.

Food can be classified as fast food, junk food, whole food, organic food out of these whole food is unprocessed, unrefined so it has very short shelf life [1]. Nowadays Mostly all food products have food preservatives. The purpose is generally to preserve the natural characteristics of food and to increase the shelf life of food, and inhibit natural ageing and discoloration that can occur during food preparation such as the enzymatic browning reaction in apples after they are cut [2].

Natural methods of preservation usually aim to exclude air, moisture, and microorganisms, or to provide environments in which organisms that might cause spoilage cannot survive [3]. Natural way of Food Preservation can be done by Boiling, freezing [4], pasteurizing, dehydrating, smoking, pickling. Adding Sugar ,sometimes sugar is combined with alcohol for preservation of luxury products such as fruit in brandy or other spirits [5] , salt, alcohol, vinegar are also often used as food preservatives. They very efficiently drop the growth of bacteria in food. Coffee powder and soup are dehydrated, dried for preservation.

Artificial way of food preservation can be done by nuclear radiation [6], vacuum packing and hypobaric packing Nowadays certain synthetic Chemical are used as food preservatives. They are the most effective for a longer shelf life and stop or delay the growth of bacteria, suppress the reaction when food comes in contact with oxygen or heat, they also prevent the loss of some essential amino-acids and some vitamins enhance the food flavours and colours.

Sodium benzoate, Benzoic acid, Sodium sorbate, Potassium sorbate, Sodium nitrite are used as Antimicrobial agents they inhibit the growth of bacteria, molds, insects and other microorganisms.

Some substances used as Antioxidants (that act as free radical scavengers) are Vitamin E, Vitamin C, Pine Bark Extract, Grape Seed Extract, Sodium Erythorbate Sodium Diacetate, Sodium Succinate, Sodium Dehydro Acetate, Succinic Acid and Ascorbic Acid, Parabens, Erythorbic Acid, Propylphenols.

Also some Chelating agents work as preservatives for example Disodium ethylenediaminetetraacetic acid (EDTA), Polyphosphates, Citric acid and Ascorbic acid Monosodium Glutamate (MSG) Disodium Guanylate and Disodium Inosinate are used as food flavouring agents

Harmful effect of preservatives; There are certain harmful effects of using chemicals for preservation such as ;Sulfites are common preservatives used in various fruits, may have side effects in form of headaches, palpitations, allergies, and even cancer.

Nitrates and Nitrites: These additives are used as curing agents in meat products. It gets converted into nitrous acid when consumed and is suspected of causing stomach cancer

Benzoates are used in foods as antimicrobial preservatives, and have been suspected to cause allergies, asthma and skin rashes.

Sorbates/sorbic acid are added to foods as antimicrobial preservatives. Reactions to sorbates are rare, but have included reports of urticaria and contact dermatitis [7].

Also a nuclear radiation when used for preservation does not make foods radioactive, but may cause changes in food color or texture [8].

After consuming certain foods if it causes allergy that can be noticed but some people develop the symptoms of allergy day or two later, so it is difficult to know what is causing the problem.

People consume variety of foods so it is difficult to find out the exact substance which causes allergy. For this reason people have to go on an elimination diet. They stop eating all foods that might be problematic and introduce one at a time to see if side reaction occurs. Side reactions of these preservatives can be immediate or build up in the body over time. Only in recent years have researchers seriously considered the physical impact of these additives over the long term [9].

II. CONCLUSIONS

Preservatives are used to increase the shelf life of food and to maintain the quality for longer time. It has been reported that chemicals which are used as preservatives have side effects. The reaction of preservatives can be very mild to life-threatening. It is best to eat a preservative-free diet if at all possible.

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