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A Review of Artificial Preservatives and Side Effect on Human Health

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Abstract: Preservatives extend the shelf-life of food, cosmetics and pharmaceuticals by preventing spoilage. Antimicrobials agent such as nitrites, nitrates, benzoates and sulfur dioxide destroy or inhibit the growth of bacteria, yeast and molds. Anti-oxidants including butylated hydroxy toluene (BHT), butylated hydroxy anisole (BHA), and propyl gallate slow or Prevent the breakdown of fats and oils. Anti-enzymatic preservatives such as citric and erythorbic acids ,inhibit the enzymatic processes including ripening, that continue in food after harvest. Natural substances such as salt, sugar, vinegar and spices have been used as preservatives since for centuries. However,most preservatives used today are artificial. Several artificial preservatives are toxic or may have potentially life-threatening Adverse effects.. Researchers have reported that artificial preservatives such as nitrates, benzoates, sulfites, formaldehyde, and other artificial preservatives may cause serious health concerns, including hypersensitivity, allergy, asthma, hyperactivity, neurological damage and cancer. Natural preservatives Derived from plants, animals, microbes and minerals may provide antioxidant, antimicrobial and antienzymatic properties. Extracts of basil, clove, neem, and rosemary are promising alternatives to their artificial Preservatives.

I. INTRODUCTION:

Preservatives are natural or synthetic substances added to fruits, vegetables, prepared food , cosmetics and pharmaceuticals to extend shelf life and maintain quality and safety. They inhibiting delay,or prevent fermentation, acidification, microbial contamination and decomposition. Before the preservatives were developed,food was stored in containers such as clay jars to reduce spoilage.Food preservation has been practiced in ancient Egyptian, Greek, Roman, Sumerian and Chinese Civilizations.Drying was a common preservation method because most bacteria and fungi require moisture to grow.

A. Classification of Preservatives

Preservatives are classified into:

1) Natural Preservatives: Natural food preservatives include Salt, Sugar, Vinegar, Spices, Honey, Edible Oil.
2) Chemical Preservatives: Chemical food preservatives include benzoates, sorbates, nitrates and nitrates, potassium sulfate, glutamates, glycerides, and synthetic or semi-synthetic compound. Chemical preservatives are classified into antimicrobial, antioxidant, and anti-enzymatic Agent .
3) Antimicrobials: Nitrites and nitrates help to prevent food poisoning caused by bacteria in meat products.They can also destroy or inhibit growth of mold, yeast, and bacteria. Sulfur dioxide prevents the deterioration of wine, beer, and fruits. Antifungal Agent such as benzoates and sorbates,inhibit fungal growth and are used in cheese, pickles, jams, and salad dressings.
4) 4.Antioxidants: Antioxidant inhibit or prevent the breakdown of fats and oils caused by exposure to air, there by reducing rancidity.

II. PRESERVATIVES USED IN VARIOUS FORMULATIONS

Pharmaceutical Products	Preservatives
Oral	Methyl, Ethyl ,Propyl parabens
Dermal	Benzoic acid, Phenyl Salicylate
Dental	Sodium Benzoate, Sodium phosphate
Nasal	Potassium Sorbate,EDTA
Rectal	Benzoic acid, sodium Benzoate

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The Perfect Preservative Properties:

1) It should not cause irritation.
2) It should not to be poisonous.
3) It should possess chemical and physical stability.
4) It should be compatible with other chemicals in the formulation.
5) It should have a broad spectrum of activity and function effectively as an antibacterial agent.
6) It should effective at low concentration.

III. COSMETICS PRESERVATIVES

Many people use lotions and skin creams daily. These products are often stored in small containers and apply with fingers,which may not always be clean. Without preservatives, bacteria could grow and multiply in the cream, potentially causing skin problems or dermatitis. Because cosmetic products are nutrient-rich environments that can support microbial growth, effective preservatives are necessary.

IV. ALTERNATIVE TO ARTIFICIAL PRESERVATIVE

Manufacturers and retailers are responding to consumer resistance to chemical preservatives in food, and cosmetics as well as research suggesting that artificial preservatives may contribute hyperactivity including in individuals who were not previously hyperactive. Natural substances and extracts obtained from plants, animals and minerals, can serve as beneficial alternatives. In addition to their use in food, cosmetics and pharmaceuticals as flavoring, binding, disintegrating, gelling, thickening or suspending agents, or as vehicles, these can also be used as preservatives

1) Grapefruit Seed Extract - also known as citrus seed extract, is a liquid derived from the seeds, pulp and white membranes of grapefruit Citrus paradise. It is a natural broad spectrum preservative used to kill or inhibit the growth of bacteria, viruses, fungi and other microbes.
2) 2.Neem oil – a vegetable oil pressed from the fruits and seeds of the neem tree Azadirachta indica are a popular anti-fungal, anti-bacterial as well as anti-protozoal agent .It is used in cosmetic including soap, hair products, body hygiene creams, hand creams.
3) 3.Vitamin E Oil - an anti-oxidant is used in cosmetics, pharmaceuticals and anhydrous products. It is found most abundantly in sunflower, and safflower oils.
4) 4.Honey - a sweet food produced by bees from flower nectar. In its undiluted form, it is nutrients-rich and is selfpreserving. It is a natural energy-booster, supports immunity, and is used as anatural remedy for many ailments.

V. CONCLUSION

The primary purpose of preservatives in food and cosmetics is to provide antimicrobial protection. However, the food and cosmetics industries must also consider the toxicity of these compounds.Therefore,the search for safe and effective preservatives remains necessary Because of their toxicity, regulation restrict or prohibit the use of some preservatives and require food and cosmetic product to be free from contamination.

VI. FUTURE PERSPECTIVE

The future of food preservation is will likely involve combining natural ingredients with modern technologies rather than replacing every synthetic preservative with a single natural compound.

1) Green extraction technologies.
2) Nanoencapsulation and controlled release.
3) Combination preservation technologies.
4) Smart and active packaging.
5) Sustainable use of agricultural by-products.

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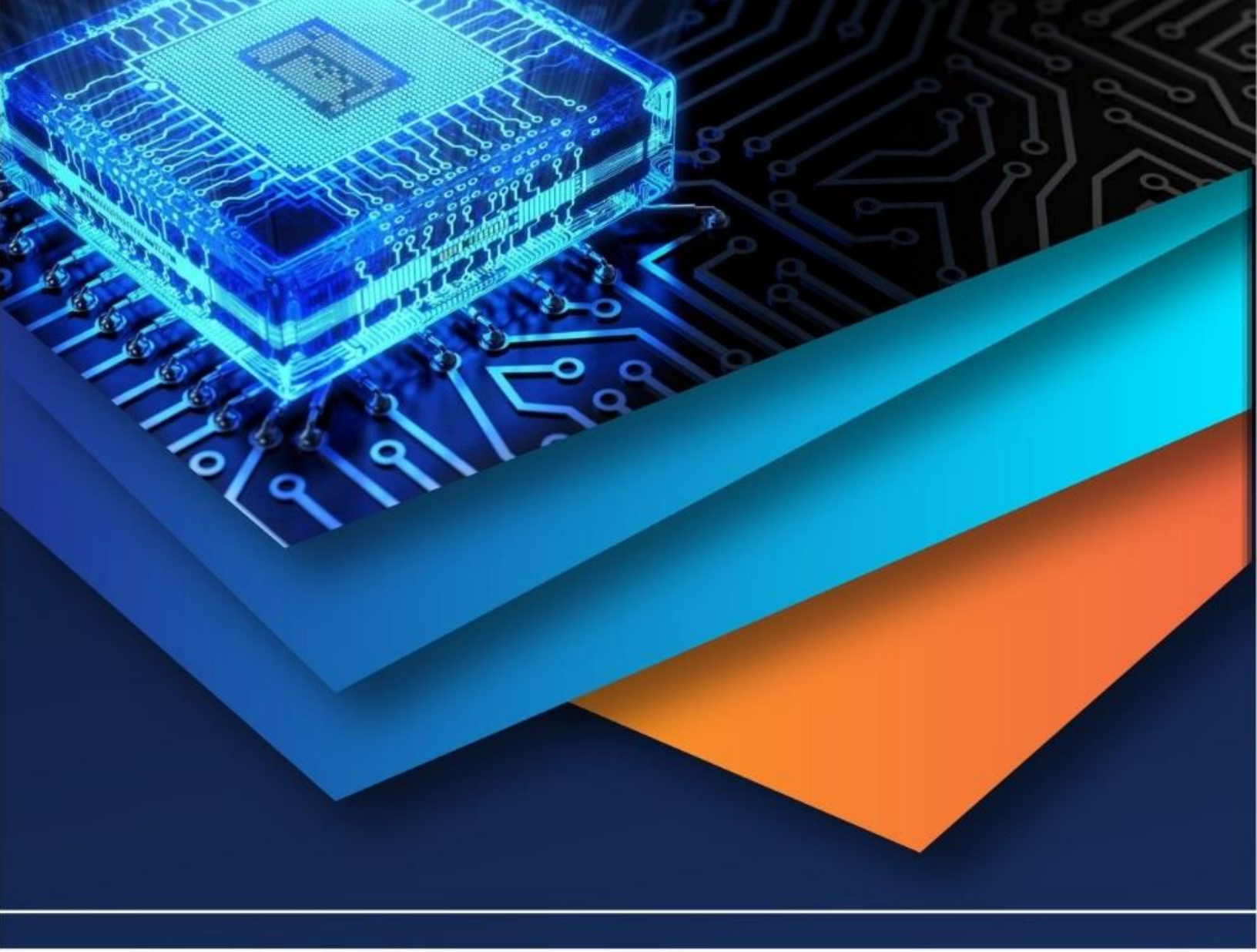
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