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Commentary

Using Ozone in the Food Sector and Cleaning Surfaces with Ozone

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ABSTRACT

Ozone is really a strong oxidant and a disinfectant. Although it is new to the United States, it has long been used in European nations. Ozone may be produced using ultraviolet energy (with a wavelength of 188 nm) and corona discharge. Ozone has been shown to have bactericidal effects on a wide range of species, including Gram positive and Gram negative bacteria, spores, and vegetative cells. Chemical and physical features of ozone, its formation, and antibacterial potency of ozone with two proposed processes, as well as several advantages of ozone application in the food sector, were discussed in this paper. Food surface hygiene, cleaning of food plant equipment, reuse of waste water, treatment and decreasing biological oxygen demand (BOD) and chemical oxygen demand (COD) of food plant waste are only a few of the applications for ozone in the sector. Using pesticides on fruits and vegetables, the use of ozone has been demonstrated to extend the shelf life of items. Notably, because ozone decomposes fast, it leaves no residues when applied to food. The usage of ozone in the food business was examined in this review.

Keywords: Ozone phytotoxicity; Gene induction; Phytoalexins; Memory effect; Cross-induction; Disease mechanisms.

INTRODUCTION

Because of its strong oxidising power and outstanding antibacterial properties, ozone has been used in industry for many years, mostly in water treatment properties. However, ozone's use in the food sector has been restricted. Specifically, it refers to the expansion of a commodity's shelf life while it is being stored [1].

Application of ozone in the food industry 169

There's been a resurgence of interest in ozone and its use in food processing. The use of ozone to decontaminate a poultry chilled(Sheldon and Chang, 1987; Waldroup et al., 1993; Sheldon and Chang, 1987; Sheldon and Chang, 1987; Sheldon and Chang, 1987; Sheldon and Chang, 1987; Swashing fruits and vegetables with ozone (Diaz and Law, 1999) and gaining acceptability with time This strong sanitizer is used in a novel way. The use of current sanitization technology is critical to maintaining the quality of the product.as well as improving the safety of fresh agricultural products. These however, technologies have a number of downsides, and certain treated items are among them [2]. Consumers may be exposed to risks. Many nations employ ozone, and the use of ozone in food processing was recently permitted in the United States (Federal Register, 2001). Furthermore, ozone-treated produce has just been introduced in the United States Market. The contemporary uses of ozone are discussed in this chapter issues that have lately been faced in trying to apply for a job in the food business ozone in food processing, as well as some potential and difficult future uses some of the application issues stemmed from a lack of fundamental knowledge. Sanitation and other ozone-related information are ozone-specific. Recent ozone research is offered with a focus on increasing the fresh produce's safety [3].

Ozone chemistry and physics

Only a limited amount of ozone reaches the troposphere (15 km height). The troposphere contains around 10% of the atmospheric ozone, yet only a very tiny amount of ozone forms naturally at the Earth's surface (Wojtowicz, 1996) [4].

Generators can produce large volumes of the gas for industrial purposes. Ozone is a three-atom triatomic molecule that is an allotropic modification of oxygen. It features a molecular structure that is a resonance hybrid of the four canonical forms with delocalized bonding and has a relative molecular mass of 48. (Figure1). Pure ozone is a pale blue gas and bluish liquid with a distinctive unpleasant odour. At room and refrigerator temperatures, ozone occurs as a gas, and it is slightly soluble in water.

Ozone has a 2.07V oxidation-reduction potential, making it the most powerful oxidant currently accessible for food applications (Brady and Humiston, 1978) [5].

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CONCLUSION

Surface bacteria that are tightly adhered to surfaces and those that are not freely exposed to ozone cannot be destroyed by simply dipping in ozonized water. Furthermore, microorganisms entrenched in the soil Surfaces of products are more resistant to ozone than those floating in the air, water. As a result, when ozone is used in food preparation, adequate contact is required on the treated food between the sanitizer and the target bacteria.

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