

# The Use of Antimicrobial Air Filters in the Food Processing Industry.

Sadao Ajibola\*

Department of Agricultural Engineering, Obafemi Awolowo University, Nigeria

## Introduction

A wide range of apparatus, appliances, and machinery used in the preparation, cooking, serving, and storing of food in a variety of commercial and institutional contexts is referred to as food service equipment. These locations could be eateries, lodging facilities, cafeterias, caterers, medical facilities, and other establishments that deal with food on a bigger scale. In the food sector, food service equipment is essential for increasing productivity, efficiency, and safety. Efficient food preparation and serving equipment is engineered to fulfill health and safety regulations, enhance operational efficiency, and augment total productivity. In order to prevent pathogens from entering the food being prepared, a lot of food service equipment products are also built using materials that adhere to food safety laws [1, 2].

In the food processing industry, maintaining a clean and hygienic environment is paramount to ensure the safety and quality of the final food products. Air quality is a critical factor in this equation, as airborne contaminants can pose a significant threat to the integrity of the production process. One innovative solution gaining traction in the industry is the use of antimicrobial air filters. These filters not only contribute to a healthier working environment but also play a crucial role in preventing microbial contamination in food processing facilities [3, 4].

Airborne contaminants such as bacteria, mold, and viruses can jeopardize the safety and quality of food products during processing. In a sector where hygiene standards are non-negotiable, maintaining a controlled and clean air environment is essential. Air quality impacts not only the health and safety of the workforce but also influences the shelf life and quality of the final food products [5, 6].

Traditional air filtration systems are effective in removing larger particles from the air, but they may fall short when it comes to microbial contaminants. Antimicrobial air filters are specially designed to address this gap. These filters are equipped with coatings or additives that actively inhibit the growth and spread of bacteria, fungi, and other microorganisms within the filtration system. Antimicrobial air filters actively target and neutralize microorganisms, preventing them from circulating in the air and settling on surfaces within the food processing facility. The antimicrobial properties not only enhance air quality but also contribute to the longevity of the filters. This can result in cost savings for the facility by reducing the frequency of filter replacements [7, 8].

The use of antimicrobial air filters aligns with stringent hygiene and safety regulations governing the food processing industry. Meeting or exceeding these standards is essential for maintaining operational licenses and ensuring consumer trust. By actively combating microbial growth, these filters significantly reduce the risk of airborne contaminants entering the production process, thus safeguarding the integrity of the final food products. Integrating antimicrobial air filters into existing ventilation and air handling systems is a straightforward process. Many filter manufacturers offer customizable solutions to suit the specific needs of different facilities. Regular monitoring and maintenance ensure that the filters continue to operate at peak efficiency, providing ongoing protection against microbial threats [9, 10].

## Conclusion

In the ever-evolving landscape of food safety, the adoption of antimicrobial air filters stands out as a proactive measure to enhance hygiene standards in food processing facilities. As technology continues to advance, the industry can look forward to even more innovative solutions that contribute to the overall safety and quality of the food supply chain. Embracing these advancements not only safeguards the reputation of food processors but also reinforces the commitment to delivering safe and wholesome products to consumers worldwide.

## References

1. Gaur N, Kumari S, Chaudhary R, et al. Nanotechnology for food and bioprocess industry. *Nanomat Bioreac Bioproc Applica*. 2023(291-305).
2. Piras F, Siddi G, Le Guern A Set al. Traceability virulence and antimicrobial resistance of yersinia enterocolitica in two industrial cheese-making plants. *Internat J Food Microbiol*. 2023; 398:110225.
3. Aouini J, Bachrouch O, Msaada K, et al. Screening of antimicrobial and insecticidal properties of essential oils extracted from three Tunisian aromatic and medicinal plants. *Internati J Environ Heal Res*. 2023:1-1.
4. Abdullah, Zou Y, Farooq S, et al. Bio aerogels: Fabrication, properties and food applications. *Critical Rev Food Sci Nutrit*. 2023;63(24):6687-709.
5. Sasi S, Prasad K, Weerasinghe J, et al. Plasma for aquaponics. *Trend Biotechnol*. 2023.

\*Correspondence to: Ajibola S, Department of Agricultural Engineering, Obafemi Awolowo University, Nigeria, E-mail: [ajibola@sadao.ng](mailto:ajibola@sadao.ng)

Received: 26-Dec-2023, Manuscript No. AAFMY-24-125619; Editor assigned: 29-Dec-2023, PreQC No. AAFMY-24-125619 (PQ); Reviewed: 12-Jan-2024, QC No. AAFMY-24-125619;

Revised: 17-Jan-2024, Manuscript No. AAFMY-24-125619 (R); Published: 23-Jan-2024, DOI:10.35841/aafmy-8.1.184

6. Sohrabi M, Razbin M, Pourtavvaf M, et al. Exercising hybrid model to design an optimized electrospun polyamide-6 nanofibrous mat for air filtration applications. *J Textile Instit.* 2023;114(11):1667-81.
7. Darwish WS, Thompson LA. Soil, water and air: Potential contributions of inorganic and organic chemicals. *Prest Knowle Food Safet.* 2023 (26-43). Academic Press.
8. Katyal M, Singh R, Mahajan R, et al. Bacterial cellulose: Nature's greener tool for industries. *Biotechnol Appli Biochem.* 2023.
9. Song X, Tian R, Liu K. Recent advances in the application of ionic liquids in antimicrobial material for air disinfection and sterilization. *Fronti Cellu Infect Microbiol.* 2023;13:595.
10. Abdullah, Zou Y, Farooq S, et al. Bio aerogels: Fabrication, properties and food applications. *Critical Rev Food Sci Nutrit.* 2023;63(24):6687-709.