Novel antimicrobial coatings on the microbial contamination of food contact surfaces.

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Introduction

An increasingly significant risk issue for food safety is cross-contamination. Cleaning and disinfection routines are crucial to preventing it, but they must be evaluated, tracked, and checked. As a result, protocols for surface sampling and the evaluation of residual contamination must be put into place. Although frequently employed, visual evaluation is poor when done alone but can be helpful when a part of a comprehensive strategy. Comparisons are made between microbial and nonmicrobial sample and testing techniques. Monitoring residual surface soil is well accomplished using nonmicrobial evaluation techniques, particularly ATP. Traditional specific and nonspecific microbiological approaches detect microbial contamination in the soils subsurface but not on the surface [1].

It is recommended to create a cleaning schedule after doing a site survey. Construction, manufacturing flow and kind, frequency and order of cleaning, facilities available, shift patterns, different food residue types, etc. are all taken into account. Standard Operating Procedures (SOPs) are typically the foundation of documentation, which is a requirement of certification standards like the BRC and helps to ensure consistency and transparency related with cleaning processes. A policy statement, a timetable and procedures, specific instructions on how to clean each space or piece of equipment, as well as record forms, would typically be included in cleaning documentation. More and more technological tools are being used to support the process [2].

Numerous things, including contaminated equipment, dirty work surfaces, unclean food supplies, inadequate cooking, unsuitable holding temperatures, and poor personal hygiene, could contribute to contamination during the production process. Some foodborne pathogens have the ability to develop biofilms on food contact surfaces, which could have an impact on the quality of the patient's food and pose a serious risk to them. Therefore, to ensure food safety and quality, proper cleaning, effective hygiene procedures, and an assessment of the presence, spoilage, and harmful microorganisms are essential. As a result, the identification of indicator microorganisms for inadequate sanitary conditions is made possible by the microbiological study of food contact surfaces [3].

Additionally, the sanitary quality of instruments and equipment is frequently assessed using the viable count of *Enterobacteriaceae*, particularly *E. coli*, which is typically recognised as the most frequent cause of foodborne illnesses and disorders. Comparing this study's *Enterobacteriaceae* count to several others, such as those carried out in Italy, it was similarly quite high. Between zero (in kneading machines) and $5.19 \log10CFU/cm2$ (in the raw meat worktops), these bacteria's means were found. A high *E. coli* load typically indicates poor production procedures, as well as inadequate or incorrect surface sanitization. Our findings show that the workstations for raw meat are the most polluted and have the greatest bacterial counts [4].

Cross-contamination from meat and poor hygiene procedures can both be used to explain this. In truth, meat is a perfect environment for the growth and reproduction of germs, particularly bacteria, therefore it is to be expected that they would multiply quickly. A cross-contamination from the worktops of raw meat to the flesh is unavoidable when hygiene is lacking. Because raw food contamination is one of the variables that has contributed to food-borne outbreaks, the high prevalence of surface contamination can put patients at risk. Food should be made in good hygienic circumstances to prevent food-borne nosocomial illnesses since it is generally thought of as a supplement to medical treatment in healthcare settings. Therefore, precise procedures must be followed throughout the whole production process, from initial creation to final consumption of hospital meals. Thus, patients with already compromised health conditions may be spared from additional biological dangers [5].

References

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