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Microbial safety of fresh produce needs implementation of a risk-based management approach

Fresh fruits and vegetables are important to the health and well being of the consumer. Global trade in fruits and vegetables and changing horticultural practices have enabled the year-round abundance to be possible, as well as adding new varieties of fresh produce to the market However, over the last several years, the detection of outbreaks of food borne illness associated with both domestic and imported fresh fruits and vegetables have increased. Fruits and vegetables are widely exposed to microbial contamination through contact with soil, dust and water and by handling at harvest or during postharvest processing. They therefore harbor a diverse range of microorganisms including plant and human pathogens. Currently no data is available about the microbial hazards associated with fresh produce in India. In the present study, 200 samples of fresh vegetables (150) and fruits (50) were collected from both local and retail markets from the southern part of Delhi, the capital of India. Then, the total microbial load, yeasts and molds on their surface were estimated. Majority of samples were found to be contaminated. The bacterial counts were found to be much higher than the Yeast and Molds counts. Presence of coliforms was also detected. Then, to eliminate the surface microbial load, various types of antimicrobial dips in varying concentration were used. Among, all the three types of antimicrobial dips tested, the most effective was found to be citric acid at 1% concentration. In this study, an initial survey of 100 retail outlets was done to assess the prevalent food safety practices of the food handlers in the various retail outlets. The findings revealed that the handling practices of the food handlers and their awareness about food safety also plays a critical role in microbial safety of fresh produce. Thus, the safety and quality of fresh produce requires implementation of a risk-based management system approach through all stages of production, distribution, storage, transportation and marketing of food products in the complete food chain.

Biography

Shalini Sehgal is working as the Vice Principal and an Associate Professor in the Department of Food Technology, Bhaskaracharya College of Applied Sciences of University of Delhi, India. She has 18 years of experience in the field of education and has been associated with various academic and research projects. She has completed her MSc and Doctorate in Dairy Microbiology from National Dairy Research Institute, India. Her area of interest is food safety and she is trained in HACCP implementation, IS 22000: Food safety management system and food safety & food hygiene. She also has expertise in container integrity and undergone training by USFDA at Alameda Lab, USA. She has worked as National Food Safety Consultant with WHO and also undertaken projects on safety aspects of street foods and fresh produce and probiotics. She has authored two books and 12 chapters on different areas of food microbiology and food safety. She has published her research work in journals of repute.

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