



Short Communication

Analysis of Microbial Contamination in Food Grade Samples at the Industrial Production Level

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Abstract

The samples were collected from the industrial area for the microbial analysis. Microbial qualities of the samples were determined by the methods of total viable count by standard plate count method and the presences of pathogens were determined by the using the various test of pathogen. Results showed that the microbial contaminations were higher in the food grade samples with presence of bacteria and fungi in the food grade samples. The presence of pathogens such as *E. coli* and *Salmonella spp.* were showed 27.06% and 13.76% in food grade samples respectively. The remaining two pathogens *S. aureus* and *Pseudomonas spp.* contamination were showed in food grade samples 9.63% and 11.93% respectively.

Keywords: Microbial contamination, total viable count, *E. coli* and *Salmonella spp.*

Introduction

Food has always played an extra-ordinarily vital role in the rise and growth or the fall and decline of a nation because of its effect on the health of the population. Consumption of unsafe, contaminated food leads to food-borne diseases which cause considerable morbidity and mortality. There is a wide recognition of the role of foods in spreading diseases and there is a general awareness of the need to set up safety and quality systems in food production¹. The raw materials are often deteriorated by microorganisms before harvesting and during handling and storage. Although only a relatively small proportion of moulds are responsible for spoilage of food and feed materials, those which do grow can cause significant economic losses to farmers, feeding stuff manufacturers and food manufacturer². Potential health risks are associated with contamination of food by *E.coli*, *Salmonella typhi*, *Pseudomonas* species, *Staphylococcus aureus* and *Proteus* species during preparation, post cooking and other handling stages³⁻⁵. The attempt was to study of the presence and growth of contaminating fungi and presence of the pathogens in the food grades samples, which are collected from the industrial areas. Microbiological quality of the samples are determined which is directly influences the microbial quality of the samples and finally products. Hence attempt was made to analyze the sample for the total viable count and the presence of the pathogen in the collected samples and evaluate the quality of the industrial products at their production level.

Material and Methods

The study of the presence and growth of contaminating fungi and pathogen in the food which are collected from the industrial areas. Microbial quality of the samples were determined by the methods of total viable count that means by pour plate method

and presence of pathogens were determined by the using the methods test of pathogen. The standard Hi- Medias are used for further works. The standards are ensure the safety of pharmaceutical and biological, standards for their quality have been developed by numerous government or government allied agencies throughout the world. The samples are analyzed for the total viable count and the presence of the pathogen in the collected samples and evaluate the quality of the industrial products at the production level⁶. The control organisms have to grow on the appropriate media for the test to be valid. Thus any microorganisms, if present in the test sample, should also grow. The growth period is up to five days and then the control microorganism colonies have to be counted⁷.

Results and Discussion

The microbial contamination in the industrial samples were harmful and hazardous for their use because the contamination of fungi, *E.coli*, *Salmonella*, *S. aureus* and *Pseudomonas* might be influences the quality of the product. In table 1 showed that the overall microbial contamination in the food grade samples. The presence of fungi and pathogen in samples might be showed the failure of the batch and reprocessed them for their absent.

While presences of any pathogen in samples were decreases the quality and standarity of the samples. The presence of *E.coli* in the food grade samples were in 59 samples out of the 218 samples means 29.06% presence of the *E.coli* in industrial food products. While *salmonella* was present in 30 samples out of 218 and percentage was 13.76%. Out of 218 samples, *S. aureus* and *Pseudomonas spp.* were present in 21 and 26 samples respectively and percentage of their presence in the food products were 9.63% and 11.63% respectively which was shown in figure 1.

Table-1
Shows overall microbial contamination in the Food grade samples

Pathogen	Fungi	<i>E.coli</i>	<i>Salmonella spp.</i>	<i>S. aureus</i>	<i>Pseudomonas spp.</i>
Samples	45	59	30	21	26
Percentage	20.64%	27.06%	13.76%	9.63%	11.93%
Total	218	218	218	218	218

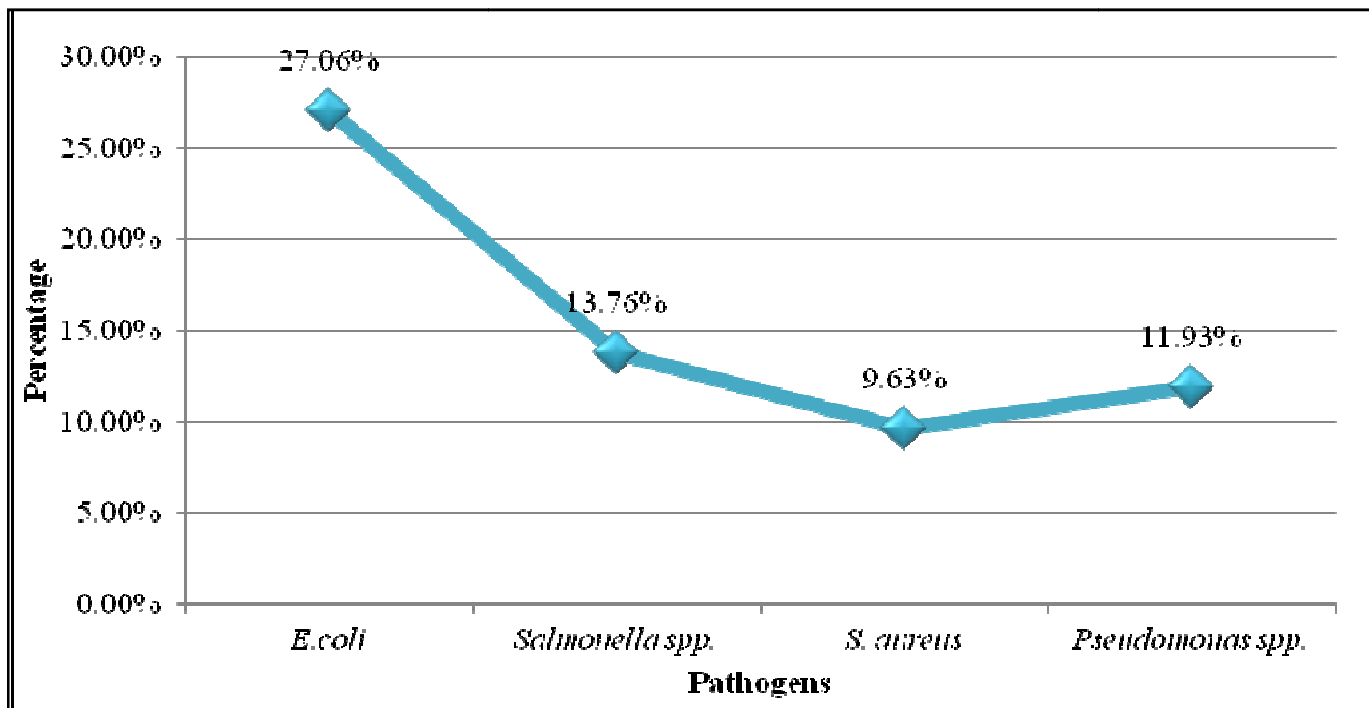


Figure-1
Shows overall microbial contamination in the food grade samples

To ensure safety of food products, microbiological tests such as testing for pathogens and spoilage organisms are required. Bacterial pathogen was present in foods for export and their raw material¹. Similar findings with presence of most cases of human foodborne infections were caused by *Staphylococcus aureus*, *Clostridium perfringens*, *Clostridium botulinum*, and *Salmonella spp.* Disease outbreaks caused by *Staphylococcus aureus* were usually due to the enterotoxin A⁸. This way the risk of contamination under normal use conditions can be examined and food poisoning outbreaks can be prevented. Thus, testing of food products and ingredients is important along the whole supply chain as possible flows of products can occur at every stage of production.

Conclusion

The microbial contamination in the industrial samples were harmful and hazardous for their use because the contamination of fungi, *E.coli*, *Salmonella spp.*, *S. aureus* and *Pseudomonas spp.* which might be influences the quality of the product. So the microbial analysis of industrial product as a raw material for

other industries influences on the quality of their final products, that means affects the products quality ultimately to the consumers. The microbial contamination creates many problems with deterioration of quality of industrial products.

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