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Microbial analysis of street food

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Abstract

Microbial contamination of food and water is a major source of illness. Severe contamination is generally linked to contaminated water, but transmission could occur through contaminated foods served by the street vendors and restaurants. Owing to rapid urban population growth, many people live in conditions of extreme poverty and poor sanitation. This has also seen to aggravate food safety problems. Globally, deaths due to food borne illness mounts to 1.8 million, to which, a significant number is contributed by India. For the microbial screening of various food samples biochemical characterization had been performed.

Keywords: Microbial contamination, food borne diseases, hygiene, street vendors

Introduction

Definition of street food

Food and agriculture organisation define street food as ready to eat food and beverages and or sold by vendors and hawkers in streets and other public places for immediate consumption without further processing. (FAO, 1998)

- A National policy on urban street vendors was brought out by Ministry of housing and urban Poverty Alleviation in 2009, which recognizes the positive role of street vendors in providing essential commodities to people at affordable prices at convenient places.

Social Significance of street foods

- Provides nutritional security to the poor.
- An average 500 g meal- 20 to 32g of protein, 12 to 15 g of fat and 174 to 183 of carbohydrate and approximately 1000 kcal.
- Opportunity for self-employment and develop entrepreneur skills with low capital investment.

Availability of street foods has offered merits such as-

- low cost
- easily availability
- a source of an employment.
- an easy solution to time starved working people and student.
- A source of employment.

The microbiological status of the food has been reported to be dependent on several factors like quality of raw material, handling and processing, manufacturing and packaging. Several microorganisms survive the preservation and storage treatment, causing several health consequences. Identification of exact source of microbial contamination is very important in devising strategies to reduce further outbreaks. From the health point of view assessing the microbiological quality of canteen foods becomes important it is a major source for transmission of food borne infection and intoxication.

- The foods could be contaminated with enteric pathogens such as *E. coli*, *Salmonella*, *Shigella* and *Enterobacter* along with toxin producing bacteria such as *Staphylococcus* and *Clostridium* spores. (frazier, food microbiology)

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Objective of study**Major Objectives are**

- To find out the perception attitude and handling practices of the canteen workers.
- To conduct the microbial studies on the selected food from the canteen.
- To identify abd recommended possible feature hygiene promotion stratigies in the canteen food sactor.

Review of Literature

- Innovat International Journal of Medical & Pharmaceutical Sciences, Febuary (2017)**, found that the microbial investigation says that the level of microbial contamination were very high in food samples. The vital reason of microbial contamination were insufficiency of awareness of hygiene.
- Journal of Ethenic foods, January (2016)**, states that there was low contamination present in ethenic street food. but the water sample was the most adulterated with microbes. risk associated with the street food can be controlled ansd make the food more safer. if some priorities are considerd-consumer awareness regarding the quality, shelf life or freshness and personal hygiene condition.

Methodology

In order to determine the availability of street foods, different locations were randomly selected.

Results**Sample 1: Chola kulcha (Chandni Chowk)**

S. No	Parameter	Method	Result
1	T.P.C cfu/g	IS:5402:2012	18364 cfu/gm
2	Coliform cfu/g	IS:5403(P-1)2013	Not detected
3	Y&M cfu/g	IS:5403:1999	52.4 cfu/gm
4	Salmonella (25g)	IS:5887(P-3)1999	Absent
5	E. coli/gm	IS:5887(P-1)1976	Absent

Sample 2: Veg Momos (Rampal Chowk-Dwarka)

S. No	Parameter	Method	Result
1	T.P.C	IS:5402:2012	1.5×10^8 (3)cfu/gm
2	Coliform	IS:5403(p-1)2013	Not detected
3	Y&M	IS:5403:1999	Not detected
4	Salmonella	IS:5887(p-3)1999	Absent
5	E. coli	IS:5887(p-1)1976	Absent

Sample 3: Choclate paan (Rajeev Chowk)

S. No	Parameter	Method	Result
1	T.P.C	IS:5402:2012	151819 cfu/gm
2	Coliform	IS:5403(P-1)2013	1.5×10^8 (5)
3	Y&M	IS:5403:1999	1000 cfu/gm
4	Salmonella	IS:5887(P-3)1999	Absent
5	E. coli	IS:5887(P-1)1976	Absent

Sample 4: Kachori (Shahdara)

S. No	Parameter	Method	Result
1	T.P.C	IS:5402:2012	0.2×10^8 (6)cfu/gm
2	Coliform	IS:5403(p-1)2013	0.28×10^8 (5)cfu/gm
3	Y&M	IS:5403:1999	120 cfu/gm
4	Salmonella	IS:5887(P-3)1999	Absent
5	E. coli	IS:5887(P-1)1976	Absent

Sample 5: Noodles (Subhash nagar)

S. No	Parameter	Method	Result
1	T.P.C	IS:5402:2012	24562 cfu/gm
2	Coliform	IS:5403(p-1)2013	Not detected
3	Y&M	IS:5403:1999	Not detected
4	Salmonella	IS:5887(p-3)1999	Absent
5	E. coli	IS:5887(p-1)1976	Absent

Discussion

Food borne Diseases are caused by pathogenic bacteria and chemical contamination of food. The rapid increase in the rate of Food borne infections is a result of the mushrooming Street Foods, which are easily affordable by poor people (Neha *et al.*, 2015) [2]. This study is an attempt to create awareness among common people about microbial contamination of street foods. Improper personal hygiene of the people preparing the foods can facilitate the transmission of Pathogenic bacteria found in environment via food to humans (Tambekar *et al.*, 2008). Most of the Food vendors in India are unaware of hygienic practices during food preparations and food regulations. They lack services such as good quality water supply and proper waste disposal systems. Thus they also lack their ability to provide safe food (Titarmare *et al.*, 2009). The reason behind the presence of *Staphylococcus aureus* could be the poor maintenance of personal hygiene by the food handlers during the preparation. *Salmonella* is known to be important food safety hazard associated with foods. The presence of these pathogens evaluates the food samples as unsafe for consumption. The presence of high count of total bacteria and coliforms indicates inadequate processing and post process recontamination due to cross-contamination with raw materials and dirty equipment as well as storage of cooked foods. Thus proper hygiene and proper storage avoiding cross contamination are the major ways for preventing food-borne diseases. If the person handling food is infected with *E. coli* or any other gastrointestinal illness, she/he should avoid preparing food unless she/he takes precautions such as wearing disposable gloves and following safe food handling steps.

Conclusion

The microbial analysis revealed that the levels of contamination were high in all food samples. Major causes were lack of attention to hygiene, poor access to clean water and improper waste disposal. This has made street foods as a source of public health problems. Street foods like variety rice, chat items and fruit juices sold in all the cities in India are consumed by a huge Population. Hence steps must be taken to ensure that street foods are safe to consume. The Government and the health ministry should establish adequate facilities, services as well as provision of necessary information and training programs for food handlers, vendors and consumers. Thus the study ensures that there is an urgent need for creating awareness about good hygienic practices among vendors for a safer consumption of street foods.

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