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ASSESSMENT OF MICROBIOLOGICAL QUALITY OF WATER USED IN STREET VENDED FOOD IN AURANGABAD CITY (M.S) INDIA

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Introduction:

Street-vended foods or street foods are those foods and beverages that are prepared and/or sold by vendors on the street and in other public places for immediate consumption or for consumption at a later time without further processing or preparation (1). The street vended foods are prepared under unhygienic conditions and displayed openly leading to a high degree of contamination. Thus, from the health point of view, the microbiological quality of street vended foods becomes important as food can act as a major source for transmission of food borne infections and intoxications. The faecal-oral route has been recognized as the most important mode of transmission for pathogenic microbes from food handlers to food (2) Street-vended foods are prone to contamination because they are sold in the open and are often not covered. Additionally, because street vendors prefer to take their products to their customers, they often operate from places such as bus terminals, industrial areas, schools, market places, streets. Such locations usually do not meet food and safety requirements (3) A number of observational studies have shown that street foods are sometimes held at improper temperatures, excessively handled by food vendors and sold at very dirty surroundings.

In developing countries, drinks, meals and snacks sold by street food vendors are widely consumed by millions of people The most popular street foods in India are *PanipuriorGolgappas* and *Papdichaat* among others. Although it is very popular, easily available and cheap, it is frequently associated with various food borne diseases. Food borne illness associated with the consumption ofstreet foods has been reported in several places in India and elsewhere. Selling the foods road side, unhygienic preparation and handling, insufficiency in water supply for cleaning purposes, make the street food one of the major sources of food borne diseases (4)

Water is a critical raw material in many street-vended operations. Contaminated water can create a public health risk when it is used for drinking, washing of foods, incorporated in the food as an ingredient and used in the processing of food or used for washing equipment, utensils and hands. It is a well known vehicle for enteropathogens such as *E.coli*, *Salmonella* spp. and *Campylobacter* spp. amongst others(5). In present study 15 water samples were collected from street vendors, used for food prepration, from different locations in Aurangabad city.

Material and Method:

Part A

In thepresent study 15 water samples were collected in a sterile bottles from street vendors, used for food preprations,from different locations in Aurangabad city(M.S) India.All samples were tested for potability with Most Probable Number. Himedia LBB,EMB Agar, Nutrient Agar is used for the said purpose.Preparation and sterilisation of themedia, and inoculation of the sample, was done according to standard protocol.

For quantitative estimation of the no of organisms/100mlwater sample, Sterile LBB distributed according to standard protocol in a set of 15 test tubes supplemented with Durham's tubes is inoculated and incubated at 37^0C for 24 hrs.

Part B

Out of 15 water samples tested,results of 11 samples shows more no of organisms and to determine the faecal contamination(Qualitative) analysis of samples is done by the 3 different tests discussed below:

a) Presumptive Test: To carryout this test sterile LBB is used.
b) Confirmed Test: Sterile EMB agar is used.
c) Completed Test: Sterile LBB and Sterile Nutrient agar slant is used.

Microscopic characterisation:Gram's nature and motility of the isolates are checked by following thestandard protocol.

Result and Discussion:

After completion of incubation period MPN set is observeredfor positive testes and w.r.t. Mackraday's Table it is found that, out of 15 different water samples tested to estimate the no of bacteria/100ml is found to be as given in the table 1. Out of 15 water samples ,4 samples shows (2/100ml),4 samplesshows(1600/100ml), 2samples shows(910/100ml),1 sample shows (540/100ml) ,1 sample shows (350/100ml) 1 sample shows(280/100ml),1 sample shows(240/100ml),1 sample shows (175/100ml).Only 4 water samples are found to be potable as the no of organisms are less then the limit set for potability in India according to the IS, whereas 11 samples are found to be nonpotable because no of organisms are more than the limit set for Potability. In 11 samples the maximum no of organisms are 1600/100ml sample and the minimum no of organisms are 175/100ml of the sample. In all 11 Samples, number of organisms are more than the limit set for Potability,which indicates heavy contamination of the water sample and is one of the important source of organisms in street vended food.

Table 1: MPN/100ml Results:

Sample	10 ml	1.0 ml	0.1ml	MPN/100ml
ACS01	1	0	0	02
ACS02	5	5	4	1600
ACS03	0	0	1	02
ACS04	5	5	4	1600
ACS05	0	1	0	02
ACS06	1	0	0	02
ACS07	5	5	2	540
ACS08	5	5	4	1600
ACS09	5	5	3	910
ACS10	5	5	1	350
ACS11	5	3	3	175
ACS12	5	5	3	910
ACS13	5	5	4	1600
ACS14	5	5	0	240
ACS15	5	4	3	280

ACS*: Aurangabad city water sample collected from street vendors from different locations.

Part B

In present study,based on results of Confirmatory test, Completed test and Microscopic characterisation, presence of *E.coli*in all 11 samples is confirmed, which indicates feacal contamination of the water samples.Feacally contaminated water is responsible for foodborn diseases in the consumers most of the pathogens are associated with faecal matter such as species *of KlebsiellaSallmonella ,Pseudomonas,Vibrio, Shigella,*etc.

Conclusion:

The aim of the present study is to assess the microbiological quality of water used for street vended foodpreparation in Aurangabad city (M.S) India.Based on results it can be concluded that the street vendors in Aurangabad city were using fiscally contaminated water in there food preparations. Such feacally contaminated food served by most of the street vendors in different locations in Aurangabad city is responsible for the foodborn diseases amongst consumers.

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