



Studies on Hand Hygiene of Food Handlers Based on The Bacteriological Examination

K. P. Misal, Garode A. M.

P.G.Department of Microbiology Shri.Shivaji Science college,chikhli, Buldana, Maharashtra, India

ABSTRACT

The Bacteriological examination of food handlers in Hotels was assessed using standard bacteriological methods. The Sample was taken on sterile cotton swabs from the hands of food handlers and vendors in the hotel were assessed for bacteriological examination .There were four types of bacterial colonies which were isolated from hands of food handlers. Four genera of bacteria were isolated and identified. They were Staphylococcus Sp. E.coli, Salmonella Sp.,Bacillus Sp. and Pseudomonas Sp., when their Morphology and Biochemical characteristics were compared with standard reference organism's .The presence of these bacterial isolates has been attributes to ineffective washing technique, rare changing of water used for washing hands and poor personal hygiene of the food handlers which could be enhanced by regular monitoring and supervision of the hotels by the authorities on food safety practices and regular education on food and personal hygiene.

I. INTRODUCTION

According to WHO A food handler is a person with any job that requires him/her to handle unpackaged foods or beverages and involved in preparing, manufacturing, serving, inspecting or ever packaging of food and beverage items. Hand hygiene is the set of basic principles employed in the systematic control of environment condition during working, production, packaging, transportation, Storage, preparation, selling and serving of food. However hand itself can propose a health threat a problem that is in securing optimal hygienic status of hands of food handlers. The public health objective of health hygiene's and safety is the prevention of illness. This is Because of careless attitude of food handlers. In an Assessment of hands hygiene status among food handlers in hotels and street foods status in town Chikhli reports that the knowledge and practice of hand hygiene and safety was poor. Good and healthy hand is important and growing concern in food services. Biological contaminants such as bacteria constitute the major cause of severity ranging from mild indisposition to chronic or life- threatening illness or both. In developing countries such contaminated hands

are responsible for food borne disease such as cholera, Salmonellosis,E.coli gastroenteris, Typhoid, fever etc. hotels, street food status are commercial catering establishment that service the hotel campus popular both the consumes incidence of diarrhea and abdominal pains are mostly prevented at public place hospital or clinic following eating or the hotels and food status , such cases are presume to be "microbial and consuming" even though no clinic or laboratory findings are provides ; There force hygienic status on hands of food handless is questionable. In most countries, food borne disease remains a public health predicament in spite of the improvement in hygienic standards, education of food handless. The hands of food handled can be pivotal as vector in the spread food-borne disease due to poor personal hygiene or cross-contamination. The risk of food borne disease illness due to contact hands or surface depends on both the level of contamination; as well as the probability of transfer and importance of contaminated surface in relation to potential transmittion of pathogens to food in apparent in food processing .

This study was carries to bacteriological examination from hands was sample of food handless.

II. MATERIALS AND METHODS

Collection of samples: Sterile cotton swabs Saturated in nutrient broth were used to swab hands of the food handlers in hotels. The swabs were brought to the microbiological laboratory for the bacteriological analysis.

Nutrient Medium: (Sample preparation and isolation of bacteria)

1. **E.M.B** : Eosin Methylene Blue
2. **M.S.A** : Mannitol Salt Agar

3. **C.A** : Cetrimide Agar

4. **B.S.A** : Bismuth Sulphate Agar

Each swabs were used for inoculation in to the medium for isolation of bacteria. The Plates of Selective Medium which is inoculated by the sample of swabs were incubated at 37° C for 24 hrs.

III. OBSERVATION & RESULTS

Table 1. Growth on Selective medium for Left Hand.

Swab Sample	MSA	BSA	EMB	CA	MacConkey Broth
1)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
2)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
3)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
4)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
5)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
6)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
7)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
8)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
9)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
11)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
12)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms

From the above observation table from all the samples of left hands are contaminated with S.aureus, S.typhi, E.coli, and Pseudomonas & Coliforms. All above bacteria were isolated after 24 hrs. on selective medium.

Table 2. Growth on Selective medium for Right Hand.

Swab Sample	MSA	BSA	EMB	CA	MacConkey Broth
1)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
2)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
3)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
4)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
5)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
6)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
7)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
8)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
9)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
11)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms
12)	S.aureus	S.typhi	E.coli	Pseudomonas	Coliforms

From the above table also all the four types of Bacteria are isolated on selective medium after 24 hrs. incubation

Table 3. Gram Staining, Biochemical tests and Enzyme test

Name of Organism	Gram Reaction	Motility	Glucose		Lactose		Mannitol		Indol	MR	VP	Citrate	Enzyme Test			
			A	G	A	G	A	G					Lipase	Oxidase	Starch	Catalase
E.coli	Gram -ve	Motile	+ve	-ve	+ve	-ve	+ve	-ve	-ve	+ve	-ve	-ve	+ve	-ve	-ve	+ve
Salmonella	Gram -ve	Non-Motile	+ve	-ve	+ve	-ve	+ve	-ve	+ve	+ve	-ve	-ve	+ve	-ve	-ve	+ve
S.aureus	Gram +ve	Non-Motile	+ve	-ve	+ve	-ve	+ve	-ve	+ve	-ve	-ve	-ve	-ve	-ve	-ve	+ve
Pseudomonas	Gram -ve	Non-Motile	+ve	-ve	+ve	-ve	+ve	-ve	+ve	+ve	-ve	+ve	-ve	-ve	-ve	+ve

IV. CONCLUSION

In general it can be concluded that the level of personal hygiene of the food handlers in hotels were found to be unsatisfactory due to poor personal hygiene and poor hand washing. The bacteriological swab test of palms of food handlers confirmed the gross unhygienic condition of food establishment there by increasing the risk of food contamination considerable. The bacterial status of food handlers is very high and these bacteria are the highly pathogenic in nature to cause very serious diseases.

V. REFERENCES

- [1]. Food handlers job description. Available from: <http://www.ehow.com>
- [2]. Definition of food hygiene. Available from: <http://www.google.com>
- [3]. Schlundt J, Toyofuku H, Jansen I, Herbst SA. Emerging food born zoonoses Rev. Sci tech 2004.