

Isolation and Identification of *S. aureus* from meat and Evaluate antimicrobial susceptibility

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Abstract— The objective of the study is to study the microbial activity of the *S. aureus* and the related food borne disease, specially seen in raw meat and test the antibiotic susceptibility of the *staphylococcus* isolates. Microbiological quality of the samples were detected by performing various technique like TCC, TSAC, TVBC, and TSSC from Total 79 samples, 35, isolates of *S. aureus* were obtained and identified by standard biochemical test. After performing all the standard test we find out that resistance percentage of the *S. aureus* sample to penicillin, ampicillin, streptomycin, tetracyclin, amoxicillin and neomycin were found to be 75.71% 62.43%, 98%, 62.42% 98% and 75.71% respectively. But no resistance to vancomycin, bacitracin and ciprofloxacin, was found in these isolates.

Index Terms: Raw meat, contamination, microbiological quality, antibiotic susceptibility, resistance, staphylococcus.

INTRODUCTION

Staphylococcal Food-borne disease i.e. SFD is one of the most common food-borne diseases contribute for the contamination of food by performed *S. aureus* enterotoxins. It is one of the most common food borne disease. Several studies and research found the prevalence of *S. aureus* in all food product especially raw meat, it found that the high risk is notice on the consumer health. Symptoms of SFD includes vomiting or diarrhea. So this research paper provide a overview of SFD and how MDR help to find out the resistance and sensitive pattern of *S. aureus* in various antibiotics.

S. aureus causes food poisoning resulting from the consumption of contaminated food with staphylococcal enterotoxins. Raw meat is a excellent

source for *S. aureus* and spread of drug-resistance in the species. We studied that MRSA (Methicillin – resistant *S. aureus* is known to be one of the most prevalent pathogens throughout the world and is capable of causing Infection.

MATERIALS AND METHODS

Microbiological analysis is done by various method for the safety of meat like Total viable Bacterial count (TVBC), Total Colony count (TCC), Total *Staphylococcus aureus* count (TSAC) using Mackonkey agar (Himedia), Mannitol salt agar (MSA), Salmonella-Shigella agar (SSA)

SAMPLE PREPARATION

10 gram meat sample were weighed aseptically in a sterile container containing 90 ml sterile normal saline. Now we have to grinded it in a grinder at 3000 rpm about 15 min – 20 min, after it, take 1 ml homogenate liquid was transferred to a sterile test tube containing 9 ml sterile distilled water to make 10⁻² dilution and shakes well with vortex mixer. We can perform Biochemical test for further analysis.

ANTIBIOTIC SUSCEPTIBLE TESTING

The antibiotic susceptibility test of *Staphylococcus aureus* isolates was determined using Disc diffusion susceptibility test⁽¹⁾ the choice to test mainly oral agent as their first line and follow this with parenteral agent as the second line if a loss of resistance is seen to the first line antibiotics, i.e. an organism sensitive to less than are performed. In this study, Kirby-Bauer disk diffusion of the National committee for clinical laboratory standards (NCCLS) (2)

The antibiotics discs were used in this study were Vancomycin (30 µg), tetracycline (µg), penicillin, neomycin (30 µg), ciprofloxacin (5µg), bacitracin (10 µg), ampicillin (25 µg) amoxicillin

RESULTS AND DISCUSSION

All these isolated were tested for their sensitivity against common antibiotics percentage resistance of the *S. aureus* samples to penicillin, ampicillin streptomycin, tetracycline, amoxicillin an neomycin were found to be 74.71%, 62.43%, 98%, 62.42%, 98% and 7.71% respectively. But no resistance to vacomycin, bacitracin and ciprofloxacin was found in these isolates. The percentage of MDR staphylococci was 20%

CONCLUSION

Staphylococcus aureus were found in some ready to eat meat samples. Here the *Staphylococcus aureus* were highly resistant to streptomycin an amoxicillin but highly susceptible to vancomycin and ciprofloxacin, further research should investigate the presence of resistance genes and genetic characterization of the *Staphylococcus aureus* isolates.

REFERENCE

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