

MULTI DRUG RESISTANT SALMONELLA SPECIES ISOLATES FROM KNIFE and CUTTING PLATFORM OF LOCAL MEAT SHOP

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ABSTRACT

In Present study surface swab of knife and cutting platform of meat shop form local meat market of Daman city. (U.T).were taken as per study under Surface Microbiology describes. In India most of meat/poultry shop practise unhygienic practise of dressing and cutting raw meat. This is because of the fact that Salmonella attaches to surface of meat and tool which are used in process of dressing and cutting the meat to sell raw meat by local meat market. Here ten surfaces Sample using sterile swab were collected were found Gram negative, bacilli, organisms named as Salmonella spp. All this isolates were then subjected to Antibiotic Susceptibility testing and found Resistant against six out of ten Antibiotic resistant by *salmonella spp.* Isolated form knife and cutting Platform of Meat shop. The antibiotic was Ampicillin, Methicillin, Tetracyclin, Vancomycin, neomycin and Bacteria.

KEY WORDS: Antibiotic Susceptibility testing, *Meat-Knife and Cutting*, Multi Drug Resistant, Platform. *Salmonella* spp. Surface Microbiology

INTRODUCTION

The carcass of a healthy animal slaughtered for meat and held in a refrigerated room is likely to have only nominal surface contamination while inner tissues are sterile. Saws or Knife used to cut the meat as will the cutting platform could be contaminated by pathogenic micro-organisms and each new surface of meat resulting from a new cut, adds more micro-organisms. The reason for such a contamination is the poor awareness of meat/poultry shop personnel. Unhygienic practices used by them while dressing the meat may lead to heavy contamination of the final product. Also the storage of dressed meat is most of the time not proper which encourages further contamination and multiplication of micro-organisms.

Collection of samples

Surface swab sample of meat Knife and cutting meat Platform were taken of specified location using Hi-culture Transport swab. This swab was used to take surface sample of Knife and plate-form from different Meat shop was taken and carries out aseptically to Lab. This Sample swab stick were label and kept in 5 ml Buffered peptone water and kept for 1 Hour incubation in Buffered peptone water, this solution were used as inoculums for enrichment of Salmonella Spp. from surface study of Knife and cutting Platform meat shop.

Isolation

Following steps were involved in isolation of the salmonella spp.

Enrichment of culture

Firstly incubated 1 ml of Peptone water was transfer to Soyabean Casein Digest Medium tubes. Incubated for 18-24 hours at 37°C. After incubation Tetrathionate Broth and Saline F broth (Hi-media) were used for enrichment of the culture. 0.1 ml of enrich culture transferred to 10 ml of Tetrathionate broth and Saline F broth and incubated at 41-43°C for 18-24 Hours.

Plating of enriched culture

Sub culturing using loop full culture was inoculated on selective media plate i.e. Deoxycholate citrate Agar, Xylose Lysine Deoxycholate Agar, and Brilliant Green Agar. Duplicate plates were inoculated per enriched sample of each media plates and were incubated at 35-37°C for 18-72 Hours.

Screening of test organisms

All the typical colonies on selective media were screened for colony characteristic, Gram Staining and motility testing using Hanging Drop method. A single Pink colony from Brillent Green Agar was selected and was inoculated on Fresh Bismuth Sulphate Agar. After incubation of the plates, biochemical testing was carried out (Rakesh and Patel 2000).

Antibiotic susceptibility testing

Salmonella spp. Isolated were then analyzed for in vitro antimicrobial testing using sensitivity Single Disc (SD) for certain Antibiotics mentioned down under (Hi-Media, 2003) on Muller Hinton Agar using 12 hour old Nutrient Broth. Culture as shown by Baurer *et. al.* (1959). The zone of inhibition around dices were measured and interpreted as

sensitive, moderately and Resistant by an antibiotic disc manufactures (Hi-media Mumbai). Antimicrobial Activity of isolated *Salmonella* spp. against different antibiotics (Zone size) is in millimeter. The details are given in table No.1 of Antimicrobial Activity of isolated *Salmonella* spp. against different antibiotics (Zone size) is in millimeter.

RESULTS AND DISCUSSION

In present study on Microbiological surface study of meat shop's Knife and cutting Plate form isolated *Salmonella* spp from various meat shop of Daman (U.T). Characteristics of screened *Salmonella* spp. were studied (Table-1). Among all the isolated *Salmonella* spp. Using selective medium on black colonies on Bismuth sulphite Agar, colorless colony on deoxycholate Agar, well develop red colonies with black center on xylulose lysine deoxycholate agar and small transparent pink colonies on Brilliant Green Agar were observed. Isolates exhibiting production of acid and gas during carbohydrate fermentation along with ability to consume citrate as sole source of carbon were confirmed identified as belonging to salmonella species. On triple sugar iron agar reddish purple slope and yellowish butt were observed indicating the dextrose fermentation butt was observed which a typical indicator of H₂S production. Comparing the cultural characteristic and biochemical tests with the available standard key literature the salmonella spp. was confirmed. Further, after conformation of salmonella spp. Antibiotic Susceptibility testing of isolated salmonella spp. was done. Total ten Antibiotic Single Disc of Hi-media were used, Antibiotic were Ampicillin, Kanamycin, neomycin, Amoxicillin, Tetracycline, Bacitracin, Methicillin, Ofloxaun, Chloramphenical, Norfloxacin and Ciprofloxacin among them six antibiotic was found Resistant by isolated *Salmonella* Spp. Isolated. Norfloxacin and Ciprofloxacin in clinical use constituted a significant advancement in the therapy not only for multiple drug resistant salmonella but many gram negative and gram positive pathogens as well. Multi Drug Resistant *Salmonella* spp. Isolated from meat-knife and Cutting Plate form used by meat shop owners. Samples show the possibility of disease outbreak due to contaminated meat and hence it is recommended that a great care must be taken to prevent breaking of Salmonellosis.

Table 1: Antimicrobial Activity of isolated *Salmonella* spp. against different antibiotics (Zone size) is in millimeter.

Antibiotics Tested	Knife S1	Knife S2	Knife S3	Knife S4	Cutting Plate form S5	Cutting Plate Form S6	Cutting Plate Form S7	Cutting Plate Form S8	Cutting Plate Form S9	Cutting Plate Form S10
<i>Ampicillin</i>	R	R	R	R	R	R	R	R	R	R
<i>Kanamycin</i>	20	18	17	13	14	18	20	21	20	21
<i>Amoxicillin</i>	20	21	22	20	21	20	21	20	20	20
<i>Neomycin</i>	R	R	R	R	R	R	R	R	R	R
<i>Tetracycline</i>	R	R	R	R	R	R	R	R	R	R
<i>Bacitracin</i>	R	R	R	R	R	R	R	R	R	R
<i>Methicillin</i>	R	R	R	R	R	R	R	R	R	R
<i>Ofloxaun</i>	R	R	R	R	R	R	R	R	R	R
<i>Chloramphenical</i>	26	25	26	20	20	26	25	26	26	25
<i>Norfloxacin</i>	29	27	28	30	28	30	28	30	28	26
<i>Ciprofloxacin</i>	32	30	32	33	32	33	32	32	30	32

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