



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

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### ABSTRACT

In Present study surface swab of knife & 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 & cutting raw meat. This is because of the fact that Salmonella attaches to surface of meat & tool which are used in process of dressing & 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 & found Resistant against six out of ten Antibiotic resistant by *salmonella* spp. Isolated form knife & cutting Platform of Meat shop. The antibiotic was Ampicillin, Methicillin, Tetracyclin, Vancomycin, neomycin & Bacteria.

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

### INTRODUCTION

The carcass of a healthy animal slaughtered for meat & 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.

### MATERIALS AND METHODS

#### Collection of samples

Surface swab sample of meat Knife & cutting meat Platform were taken of specified location using Hi-culture Transport swab. This swab was used to take surface sample of Knife & plate-form from different Meat shop was taken & carries out aseptically to Lab. This Sample swab stick were label & kept in 5 ml Buffered peptone water, & 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 & cutting Platform Of 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 &

Seline F broth (Hi-media) were used for enrichment of the culture. 0.1 ml of enrich culture transferred to 10 ml of Tetrathionate broth & Seline F broth & incubated at 41-43°C for 18-24 Hours.

#### Plating of enriched culture:

Sub culturing using loopful culture was inoculated on selective media plate i.e. Deoxycholate citrate Agar, Xylose Lysine Deoxycholate Agar, & Brilliant Green Agar. Duplicate plates were inoculated per enriched sample of each media plates & 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 & motility testing using Hanging Drop method. A single Pink colony from Brilliant Green Agar was selected & was inoculated on Fresh Bismuth Sulphate Agar. After incubation of the plates. After incubation of biochemical testing was carried out.

#### 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) on Muller Hinton Agar using 12 hour old Nutrient Broth. Culture as shown by Kirby & Baurer (1960). The zone of inhibition around discs were measured & interpreted as sensitive, moderately & Resistant by an antibiotic disc manufactures (Hi-media Mumbai). Antimicrobial Activity of isolated *Salmonella* spp. against different antibiotics (Zone size) is in millimetre. The details are given in table No.1 of Antimicrobial Activity of isolated *Salmonella* spp. against different antibiotics (Zone size) is in millimetre.

**RESULT & DISCUSSION:**

In present study on Microbiological surface study of meat shop's Knife & cutting Plate form isolated *Salmonella* spp from various meat shop of Daman (U.T). Characteristics of screened *Salmonella* spp. were studied. Among all the isolated *Salmonella* spp. Using selective medium on black colonies on Bismuth sulphite Agar, colourless colony on deoxycholate Agar, well develop red colonies with black centre on xylulose lysine deoxycholate agar & 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 H<sub>2</sub>S production. Comparing the cultural characteristic and biochemical tests with the available standard key literature the salmonella spp. was confirmed.

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

Antibiotics Tested	Knife	Knife	Knife	Knife	Cutting Plate form	Cutting Plate Form	Cutting Plate Form	Cutting Plate Form	Cutting Plate Form	Cutting Plate Form
	S1	S2	S3	S4	S5	S6	S7	S8	S9	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

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 & Ciprofloxacin among them six antibiotic was found Resistant by isolated *Salmonella* Spp. Isolated. Norfloxacin & Ciprofloxacin in clinical use constituted a significant advancement in the therapy not onl for multiple drug resistant salmonella but many gram negative and gram positive pathogens as well. Multi Drug Resistant *Salmonella* spp. Isolated from meat-knife & 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.

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