**Incidence of Spore Forming Bacteria in Bouillon and Consommés**

**Basma M. Saleh; Abdelrahman, A. H. and Elharouny. S.M**

Department of Food Hygiene, Faculty of Veterinary Medicine, Suez Canal University

**Abstract**

A total of 100 Bouillon cube samples, (40 Chicken, 40 Beef and 20 Lamb) were collected from different supermarkets in their original packages (from one to 8 cubes/Package) and subjected to estimate the incidence of Aerobic spore forming Bacillus species in the examined chicken, beef and lamb Bouillon and Consommé. The incidence was (40%), (60%) and (40%) in the examined samples respectively. The Minimum, Maximum and the mean values of Aerobic spore forming count in examined chicken ,beef and lamb Bouillon and Consommés samples were 10 , 8 $x10^3$ and 2.5 $x10^3$ ± 1 $x10^3$ ; 10 , 5 $x10^4$ and 5.0 $x10^3$ ± 5 $x10^2$ ; 10 , 15 $x10^2$ and 2.0 $x10^2$ ± 1 x10 , respectively. 11 strains of Bacillus spp. could be identified in both chicken and beef cubes (*B. cereus, B. megatrium, B. circulans, B. coagulans, B. licheniformis, B. pumilus, B. subtilis, B.sphaericus, B. circulans, B. stearothermophilus and B.brevis*), while only 7 strains of Bacillus spp. were identified in lamb cubes *(B. circulans, B.subtilis, B. stearothermophilus, B. megatrium, B. coagulans, B. licheniformis and B.cereus).* Incidence of pathogenic *Bacillus cereus, B.subtilis* and *B.lichniformis* in chicken, beef, lamb of Bouillon and Consommés samples were 58%, 25.8% 16.2% ; 25.8%, 48.8%, 25.8%; 43.5%,34.8%,21.7% respectively., the public health significances of the identified Bacillus species were discussed.

**Keywords:** Bouillon and Consommés, Spore forming, food poisoning Bacillus cereus.

# Heavy Metal Residues and Economic Parameters of Exported Fish from Mediterranean Sea Zone 37

**Ali Meawad Ahmed; *Mostafa Ahmed Mandour and Shahenda M. Abd-alftah**

Dept. of Food Hygiene and Control, *Dept. of Animal Wealth Development, Faculty of Vet. Med., Suez Canal University, Egypt.

## Abstract

Fish flesh has a great nutritional value for its content of important nutrients for humans, as well as if it is exported abroad well increase the national income and hard currency. Cd, Cu, Pb and Zn can be dangerous even if low levels when consumed with contaminated food for a long time. Therefore, a total of 80 fish samples were collected from three sites along the Zone 37 on the Mediterranean Sea during the wet (December-April) season of 2017. The first group of fish samples is represented as *Oreochromis niloticus* where collected from the farming Tilapia sites at Bahr El-Baker Canal, Damietta branch. Other fish groups equally collected from the fish hunted from the Zone 37 of Mediterranean Sea and ready to exportation as Argyrosomus *regius, Epinephelus alexandrines and* Dicentrarchus *labrax.* Moreover, determining seasonality of marine fish demand and estimating the economic parameters of fish exports. The mean cadmium residual level for *O. niloticus; A. regius; E. alexandrinus* and *D. labrax* were 0.7 ±0.9; 0.009 ±0.002; 0.097 ±0.033 and 0.084 ±0.007 mg/kg in flesh of samples was mg/kg (wet wt.) respectively. The mean copper residual levels for *O. niloticus; A. regius; E. alexandrinus* and *D. labrax*were 1.621± 0.954, 1.004± 0.621, 0.687 ± 0.321 and 0.441± 0.038 mg/kg in flesh of samples was mg/kg (wet wt.) respectively. The mean lead residual levels for *O. niloticus; A. regius; E. alexandrinus* and *D. labrax*were 1.364 ± 0.687, 0.023 ± 0.009, 0.564 ± 0.267, 0.063 ± 0.011 mg/kg in flesh of samples was mg/kg (wet wt.) respectively. The mean zinc residual levels for *O. niloticus; A. regius; E. alexandrinus* and *D. labra* were 2.140 ± 0.981, 6.510 ± 1.248, 8.269 ± 2.245, 7.698 ± 1.647 mg/kg in flesh of samples was mg/kg (wet wt.) respectively. The results of this study must ensure that the fish in the Mediterranean Sea Zone 37 comply with the legislative limits for cadmium, copper, lead and zinc as laid down in European Communities, Egyptian Organization for Standardization and Quality Control and WHO Legislations. They can be considered safe for human consumption and do not pose a significant threat to the consumer's health. The study also concluded that winter months have higher demand for marine species, and that the net profit per kilogram of exported fish was $3.24 United States Dollar (USD), therefore the Egyptian Government is encouraged to invest more in fishing fleets.

**Effect of Banana Peel Extract on Sensory and Bacteriological quality of Marinated Beef**

Ali Meawad Ahmed; *Taghreed A. E. Hafez and Mona Mohammed Eissawy

Dept. Food Hygiene, Faculty of Veterinary Medicine, Suez Canal University, *Animal Health Research Institute, Port-said branch

**Abstract**

Marination is the process of soaking foods in a seasoned, meat marination using different marinades not only improve the beef sensory quality, but also improve the bacteriological quality. Banana is one of the oldest cultivated and the most popular fruits distributed all over the world. Peoples supposed to consume fruits and discard their peel as waste. The present study was carried out to use the Egyptian banana peel extracts as supplement to traditional marination ingredients of beef for improving their microbial quality and safety. Beef samples were marinated with salt, onion, tomato and 1%, 3% and 5%of banana peel aqueous extracts then stored at 4°C for 4 hours. The sensory parameters of meat before roasting indicated good values with the addition of 1% BPE while were improved by marination with different concentrations of BPE after roasting by panel testing. BPE exhibited antimicrobial activity against *Staphylococcus aureus* in vitro, it also induced antimicrobial activity against aerobic and enterobacteriaceae with increase the reduction percent by increasing the concentration of banana peel. *Salmonella spp.* and *E. coli* was not detected by available laboratory methods in all examined beef samples. The results ensured that the Egyptian banana peels extract have antibacterial effect against aerobic, enterobacteriaceae and *S. aureus* bacteria. So it can be used as natural preservative for meat and meat products.

**Key words**: Beef, Marination, banana peel extract, meat sensory quality, bacteriological quality.

# Quantitative and qualitative buffalo lesions and their economic importance at El-Tal Elkebeer abattoir, Egypt

Ali MeawadAhmed[1], Mostafa Mandour[2*]

[1]Department of Food Hygiene and Control, Faculty of Veterinary Medicine, Suez Canal University,41522, Ismailia - Egypt

[2]Department of Animal Wealth Development, Faculty of Veterinary Medicine, Suez Canal University, 41522, Ismailia -Egypt

[*]Correspondence: mostafa_mandour@vet.suez.edu.eg

**Abstract:**

The objective of this study was to assess the quantitative and qualitative pathological lesions in adult and young buffalos slaughtered at El-Tal Elkebeer abattoir, Ismailia, Egypt as well as studying their direct economic losses for the period from 2005 to 2015. Data were obtained from the Directorate of Veterinary Medicine at Ismailia city while prices were obtained from direct contact with butchers. The quantities of buffalo organ condemned were 302 units for adults and 272 units for calves. The most recorded condemned organs during the study period were lung (245 units) and liver (220 units). The qualitative of most recorded pathological lesions were lung congestions (27.53%) and liver fascioliasis (26.48%). The total direct economic losses due to offal condemnations at the period under the study were 71173.50 Egyptian Pounds (EGP) for adult buffalo and 28057.50 EGP for calves. These financial losses could be due to bad management systems of buffalo in rural areas were many are out of veterinary authority control and consequently many diseases might be endemic. It is recommended to increase veterinary campaigns at the rural area and markets to control spreading of buffalo diseases and minimize the economic losses.

**Key words**: Buffalo, condemnation, economic losses, fascioliasis, offal.

# *Bacillus cereus* toxicoinfection as a zoonotic disease

**Safaa H. Ghorbal**

General Authority of Veterinary services Ministry of Agriculture

**Abstract**

A total of 120 random samples were collected from ready-to-eat (RTE) meat sandwiches and clinical stool samples that were referred to Damanhour public hospital (60 of each). Ready to eat meat sandwiches were collected from different fast food restaurants with different sanitation levels at Damanhour City. RTE sandwiches evaluated were kofta, fried liver and shawerma (20 of each). *Bacillus cereus* could be isolated with a percentage of 13.33, 85, 70 and 80% from human stool, kofta, fried liver and shawerma, respectively. The mean value of *Bacillus cereus* was 4.40 ± 0.25, 4.59 ± 0.26 and 4.51 ± 0.23 $\log_{10}$ CFU/g in examined kofta, fried liver and shawerma sandwiches, respectively. The *nhe* and *cytK* genes were common in examined *B.cereus* from stool samples 66.7% and *nhe* gene was the common detected gene in 100 % of examined *B. cereus* strains, *cytk* gene detected in 66.6% of examined strains, while *ces* was detected in 33.3 % of examined *B. cereus* strain isolated from RTE meat sandwiches.

**Key words:** Toxicoinfection, Ready-to-eat meat, kofta, fried liver, shawarma and B. cereus.

**Zoonotic importance of prevalent trematodes in some fresh water fish.**

**[1]Safaa H. Ghorbal and [2]Abdallah M. A. Merwad**

[1]General Authority of Veterinary services Ministry of Agriculture
[2]Department of Zoonoses, Faculty of Veterinary Medicine, Zagazig University, Zagazig, 44511, Egypt.

**Abstract**

A total of 125 fish samples including catfish (Clarias lazera, 70) and mullet (*Mugil cephalus*, 55) were collected from Zagazig markets. All fish samples were examined by both muscle compression and tissue digestion techniques. The overall prevalence of encysted metacercariae in examined catfish (*C. lazera*) was 84.2%. Also, the infection ratesof catfish with trematode metacercariae was 59.3% in muscles only; 33.8% in viscera and 6.8% in gills.Mullet fish showed an overall infection rate of 67.2% for encysted metacercariae, but the prevalence of metacercariae was 62.1% in mullet muscles, 32.4% in viscera, and also 5.4% in gills. Among the total infected catfish with encysted metacercariae (EMC) in their muscles, heterophyid EMC showed the highest distribution (45.7%, then followed by *Heterophyes* EMC (28.5%), then *Metagonimus* EMC (17.1%) and the lowest distribution was recorded for *Echinostoma* EMC (8.5%). Regarding the percentages of distribution of different EMC types among the totally infected muscles of mullet, heterophyid EMC showed the highest distribution (52.1 %) followed by *Heterophyes* EMC (21.7%); 17.3% for *Metagonimus* EMC but the lowest percentage (8.6%) was represented in *Echinostoma* EMC**.**Two types of worms identified into *Heterophyes heterophyes* and and *Echinostoma* spp. were recovered with post feeding of puppies on infected catfish muscles. Two types of adult heterophyids belonging to *H. heterophyes* and *Metagonimus yokogawai* were identified postinfections of puppies on infected muscles of mullet with metacercariae. All these recoverd trematodes have zoonotic importance.

**Prevalence of food poisoning organisms existing in meat and its products**

**Elsaid A. Eldaly[1], Mohamed A. Hussein[1], Hanan M. Ellawndy[2], Huda K. Hussein[2]**

1. Food Control Department, Faculty of Veterinary Medicine, Zagazig University, Zagazig.

2. Food Control Department, Animal Health Research Institute, Zagazig.

**Abstract:**

Food poisoning occur worldwide causing economic burdens and catastrophic death toll. These foodborne diseases including those acquired through the consumption of contaminated meat. The objective of this study was to evaluate the prevalence and most common types of contaminating bacteria in retailed meat and its products. A total of 120 samples from meat and its products including minced meat, sausage and burger (30 samples for each), were purchased from different markets and butchers in Al-Sharkia governorate, Egypt. Four types of major foodborne pathogens were identified using conventional culture, biochemical and serological methods. The most prevalent bacteria through the samples were *E.coli* (63.5%), followed by *Staphylococcus aureus* (37.5%). *Salmonella* spp including salmonella *enterica* serovar *Typhimurium* and serovar *Kentucky* occupied percentage (15%) of tested samples, while Bacillus cereus was (21.6%).

# Prevalence of multidrug resistant *Staphylococcus aureus* in fish

**Eldaly, E. A.[1], Hussein, M. A.[1], Shafik, S[2], and Mishref, M. A. [2]**

1-Food Control Dept.,Faculty of Vet. Medicine,Zagazig University,Zagazig,Egypt.

2-Animal Health Research Institute, Mansoura Lab.,Mansoura, Egypt.

**Correspondence author:** Mohammed Abdel Fattah Mishref, mishref2015@gmail.com

## Abstract

A total of 240 samples of raw fish *(T. nilotica, M. cephalus,* shrimp and crab*)* and processed fish (Fesiekh and smoked herring) (40 of each) were collected from different fish markets in Dakhlia Governorate, Egypt. The collected samples were subjected to organoleptic examination and examined for the presence of *Staph. aureus*. Sensory evaluation of the examined fish samples revealed that 92.5%, 95%, 100%, 100%, 90% and 92.5% of the examined *T. nilotica*, *M. cephalus*, shrimp, crab, Fesiekh, and smoked herring samples were accepted, respectively. Fesiekh had the highest mean total *Staph. aureus* count ($2.7\times10^3\pm0.78\times10^3$) followed by smoked herring ($2.4\times10^3\pm0.7\times10^3$), *M. cephalus* ($1.2\times10^3\pm0.38\times10^3$), *T. nilotica* ($7\times10^2\pm2.8\times10^2$), shrimp ($2.1\times10^2\pm1.5\times10^2$), and crab ($1.5\times10^2\pm0.9\times10^2$), respectively. The incidence of *Enterotoxin* production in 16 selected *Staph. aureus* isolates from processed fish was 6.25% for *Enterotoxin A*, 6.25% for *Enterotoxin C*, and 12.5% for *Enterotoxin D*. The antibiotic resistance percentages for the same selected 16 *Staph. aureus* isolates was the highest for Neomycin (100%) followed by Kanamycin (93.8%), Streptomycin (81.3%), Nalidixic acid (81.3%), Penicillin (75.0%), Oxytetracycline **(**62.5%), Cephalothin **(**56.3%), Sulphamethoxazol **(**56.3%), Enrofloxacin **(**50.0%), Erythromycin (43.8%), Gentamicin (31.3%), Ciprofloxacin (25.0%), Oxacillin (12.5%), and Vancomycin (6.3%). Percentage of 81.3% of *Staph. aureus* isolates showed Multiple Antibiotic Resistance for more than 3 antibiotics. PCR identification of erythromycin, gentamicin, methicillin and vancomycin resistance genes in tested *Staph. aureus* isolates were 37.5%, 18.75%, 12.5%, and 6.25%, respectively.

**Key words*:*** *Staphylococcus aureus*, Fish, Fesiekh, Smoked Herring, Antibiotic Resistance.

**Incidence of Food Poisoning Organisms In poultry Meat and Its Products**

**Elsaid A. Eldaly[1], Neveen, H. Abo El-Eneen[2], Mohamed A. Hussein[1], Soad, H. EL- Sheikh[2],**

1. Food Control Department, Faculty of Veterinary Medicine, Zagazig University,

2. Food Control Department, Animal Health Research Institute, Zagazig.

**Abstract:**

Food borne illness resulting from consumption of contaminated food with pathogenic bacteria and/or their toxins has been of vital concern to public health **(Busani*et al.*, 2006)**.A total of 120 poultry and its products samples [raw under cooked (fresh breast, thigh muscle) poultry giblet (liver) and poultry products ready to eat (luncheon)] 30 for each were randomly collected from different markets in Zagazig city - Sharkia Governorate, Egypt. For evaluation of some food poisoning organisms. The collected samples were subjected to bacteriological examinations. The obtained results revealed that the mean values of *Staphylococcus aureus* count in positive samples were3.15±0.65, 3.09±0.6, 2.74±0.54 and 2.99±0.62 $\log_{10}$ CFU/g ,with an incidence ratio 33.33%,36.66%, 33.33% and 10% in the chicken breast, thigh muscles , liver and luncheon samples respectively, with a total percentage of 22.5 %. It is cleared that the incidence ratio of *Salmonella, E.coli* and *Bacillus cereus* was 13.3%, 33.33% and 13.33% in chicken breast muscle; 13.33%, 36.66% and 3.3% in thigh muscle; 16.66% and 33.33%in liver samples. Bacillus cereus failed detection in any liver sample, meanwhile Salmonella and Bacillus cereus failed to be detected from all luncheon samples under inspection with a contamination ratio of *E.coli* by 10%.Salmonella spp. was isolated from all examined chicken samples by 10.8%. The isolated Salmonella spp. was serologically identified as Salmonella *enteric* serovar *Typhimurium* in the examined breast and thigh muscles with the incidence of 25% and 50% respectively. Serovar *Enteritidis* in the examined breast, thigh muscles and liver with the incidence of 50%, 50% and 40% respectively. *Salmonella enteric* serovar *labadi* was serologically identified with the incidence of 40% in chicken liver.

# Influence of Probiotic Bacteria on Some Pathogenic Bacteria in Yoghurt and Kariesh Cheese

Salah F. A. Abd El Aal, Rania M. Kamal, Magdy Sh. Elsayed and Hend Talat

Food Control Department, Fac. of Vet. Med., Zagazig University, Egypt.

**Abstract:**

Three experiments were performed to know the efficacy of probiotic (*L. rhamnosus)* on foodborne pathogens (*E. coli* O26:H11 *and Staph aureus*) in yoghurt and kariesh cheese. The aim of the first experiment was to investigate the ability of probiotic strain to inhibit these foodborne pathogens using agar well diffusion method, the results are the mean of three independent replicates and revealed that *L. rhamnosus* inhibited all of the tested organisms. *L. rhamnosus* had the strongest effect on *S. aureus* followed by *E. coli* O26:H11. The widest inhibition zone was observed in case of *S. aureus* and at the same time, the narrowest inhibition zone was observed in case of *E. coli* O26:H11. The aim of the second experiment was to test the inhibition of *E. coli* O26:H11 and *S. aureus* in the presence of *L. rhamnosus* during fermentation under controlled pH conditions, during yoghurt manufacture. Although starter culture was the same which added to all yoghurt batches and pH levels of each kind of yoghurt were nearly the same, the difference in *E. coli* O26:H11 and *S. aureus* counts between regular yoghurt batches inoculated with *E. coli* O26:H11or *S. aureus* only and batches inoculated with *S. aureus* or *E. coli* O26:H11 plus *L. rhamnosus* may be due to additional antibacterial substances produced by *L. rhamnosus*. It was noticed that the elimination times of *E. coli* O26:H11 or *S. aureus* in yoghurt batches inoculated with *L. rhamnosus* more shorter than yoghurt batches inoculated with *E. coli* O26:H11 or *S. aureus* alone. The results indicated that the probiotic culture is capable of delaying growth of many foodborne pathogens, and confirmed the antagonistic effect of co-inoculation of *L. rhamnosus* with yoghurt starter against *E. coli* O26:H11and *S. aureus* during yoghurt manufacture. The aim of the third experiment was to test the inhibition of *E. coli* O26:H11and *S. aureus* in the presence of *L. rhamnosus*, during kariesh cheese manufacture. The difference in *E. coli* O26:H11 and *S. aureus* counts between kariesh cheese batches inoculated with *E. coli* O26:H11or *S. aureus* only and batches inoculated with *E. coli* O26:H11or *S. aureus* plus *L. rhamnosus* may due to additional antibacterial substances produced by *L. rhamnosus*. From these results it is noticed that the elimination times of *E. coli* O26:H11 or *S. aureus* in kariesh cheese batches inoculated with *L. rhamnosus* more shorter than kariesh cheese batches inoculated *E. coli* O26:H11 or *S. aureus* alone. Results indicated that the probiotic culture is capable of delaying growth of *S. aureus* and *E. coli* O26:H11, in kariesh cheese.

**Keywords:** *S. aureus*; *E. coli*; Yoghurt; Kariesh cheese; probiotic; *L. rhamnosus.*

# Effect of Some Chemical Water Pollutants on the Efficiency of New Castle Disease Virus Vaccines in Broiler Chicken

Mousa A. Ayoub[1], Mohamed, A. Nossair[2]and Nehad A. Saleh[1]

1 Department of Animal Hygiene and Zoonoses, Faculty of veterinary medicine, Damanhur University
2 Department of Animal Hygiene and Zoonoses, Faculty of veterinary medicine, Alexandria University
**Corresponding author E. mail**: mohammadnossair @yahoo.com

**Abstract**

An experimental trail was conducted to detect effects of some chemical water pollutants on the humeral immune response of broiler chicken to some vaccines. A total of 300 unsexed, one day old chicks (Cobb 500) ® obtained from Al Shrouk Company were randomly distributed into twelve groups (25 chick /group).Groups 1,3,5,7 ,9 and 11(control group) received tap water containing TDS content of 1560 mg/l, hardness level of 960 mg/l, chloride level of 640 mg/l, nitrite content of 0.1269 mg/l, sulfate level of 877mg /l and tap water alone while groups 2,4,6,8 ,10 and 12(control group) obtained water with the same corresponding previous treatments plus Custovac as a water stabilizer. Birds were vaccinated with Hitchner IB (BIO VAC ND-IB), CEVAC® GUMBOL and HIPRAVIAR-*Clon*® through intraocular (I/O) route. Serum samples were obtained at 14th, 25th and 32 day old and subjected to haemagglutination inhibition (HI) test. It was found that the highest immune response against Newcastle Disease Vaccine (NDV) occurred in the group received tap water only and the group received water containing chlorides only (6.40 ± 0.24495[a] and 6.40 ± 0.400[a], receptively at 14th day old and the control group received tap water plus Custovac at 25th and 32 day old (5.8333±0.47726 [a] and 5.2000 ± 0.489 [a], receptively) while the lowest HI titre was recorded in hardness treated groups. Based on the obtained results, it was noticed that different water impurities (TDS, hardness, chloride, nitrite and sulphate) negatively affected antibodies production post vaccines with NDV as well the residual maternal antibodies from 2nd to 5th week as compared to control groups.

**Keywords:** Broilers, Chemical pollutants, Immune response, Vaccines.

# Microbial evaluation of meat in Behera Province

**Hossam A. Ali[1], Shaimaa, M. Ibrahim[1]and Mohammad A. Nossair[2]**

1. Food Hygiene Dept., Faculty of Veterinary Medicine, Alexandria University
2. Animal Hygiene and Zoonoses Dept., Faculty of Veterinary Medicine, Alexandria University

**Abstract**

A total of 90 samples of beef meat were randomly collected from abattoirs, butchers shops and hypermarkets (30 / each) in Behera province. Samples were subjected to microbiological examination for determination of aerobic plate count (APC), Enterobacteriaceae count and coliforms count. In addition, isolation and identification of *E. coli* and *Salmonellae* were attempted. The obtained results revealed that the highest mean values of APC was observed in samples collected from butcher shops ($8.9\times10^5\pm1.1\times10^5$ cfu/g) followed by samples collected from hypermarkets ($7.2\times10^5\pm1.2\times10^5$ cfu/g) and lastly samples collected from abattoirs ($5.2\times10^5\pm1.3\times10^5$ cfu/g). Concerning Enterobacteriaceae count, the highest mean values were observed in samples collected from hypermarkets ($6.63\times10^3\pm 2.36\times10^3$ cfu/g) followed by samples collected butcher shops ($3.19\times10^3\pm 5.87\times10^2$ cfu/g) from and lastly samples collected from abattoirs ($9.02\times10^2\pm 3.33\times10^2$cfu/g). Finally, the mean values of Coliforms count of beef samples collected from abattoirs, butcher shops and hypermarkets were $6.10\times10^2\pm 6.4\times10$, $7.23\times10^2\pm 5.4\times10$ and $1.32\times10^{2a}\pm 2.1\times10$ cfu/g, respectively. Moreover, *E. coli* was isolated from 30, 23.33 and 13.33 % of the examined samples of abattoirs, butcher shops and hypermarkets, respectively while *Salmonellae* could be isolated from 3.33, 10 and 6.67 % of the examined samples of abattoirs, butcher shops and hypermarkets, respectively. It was clear that the microbial status of the examined beef samples collected from butcher shops reflected higher contamination rates compared to the examined samples collected from abattoirs and hypermarkets that may be traced back to external contamination during handling and transportation.

# Prevalence of Methicillin Resistant Staphylococcus aureus in humans and dairy cattle farms

**Yasser, N. Haggag[1], Fatma A. Abd El Baqy[1], Mohamed, A. Nossair[1*], Ghada A. H. El Gatma[2] and Mohammad S. Y. Rizk[3]**

1. Department of Animal Hygiene and Zoonoses, Faculty of veterinary medicine, Alexandria University
2. Animal Hygiene and Zoonoses Dept., Faculty of Veterinary Medicine, Sadat City University
3. Department of Microbiology, Animal Health Research Institute, Damanhur Branch

## Abstract

The current study was carried out in Behera province, Egypt for isolation, identification of methicillin resistant *Staphylococcus aureus* (MRSA) recovered from workers in human hospitals and animal farms as well as dairy cattle farms. A total of 127 nasal and hand swabs were randomly collected from workers including; health care workers (89) and farm workers (38). In addition, a total of 266 different samples were collected from dairy cattle farms including; nasal swabs of cattle (135), milk (89) and milking machine swabs (42). Isolation of MRSA on Oxacillin Resistant Screening Agar Base (ORSAB) was attempted. Finally, the recovered MRSA isolates were screened for presence of *mecA, mecC* and *PLV* genes by conventional polymerase chain reaction (PCR). The recorded results showed that the prevalence of MRSA in healthcare and farm workers was 29.2 and 36.8%, respectively. Concerning dairy cattle farms, the prevalence of MRSA was 48.14, 30.33 and 90.47 % in the examined samples of cattle nasal swabs, milk and milking machine swabs, respectively. Finally, 34 isolates of MRSA were randomly selected and screened for the presence of *mecA, PVL* and *mecC* genes by conventional PCR and it was found that *mecA* gene was detected in 16 isolates while *PVL* and *mecC* genes could not be detected. Based on the recorded results in this study, it was clear that MRSA colonized workers in both hospitals and animal farms. Also, cattle could be considered as potential source and reservoir of MRSA for humans.

**Key words:** MRSA, Prevalence, Antibiotic Resistance, Humans, Cattle.

**Incidence of Food Poisoning Bacteria in Some Processed Chicken Products Mahmoud R. Abd Allah[1], Ola, M. El – Betar[1], Ibrahim A. Samaha[1] and Mohammad A. Nossair[2]**

1. Food Hygiene Dept., Faculty of Veterinary Medicine, Alexandria University
2. Animal Hygiene and Zoonoses Dept., Faculty of Veterinary Medicine, Alexandria University

**Abstract**

A total of 200 random samples of processed chicken meat products including; luncheon, frankfurter, Keshta and smoked turkey breast (50 of each) were collected from different supermarkets at Alexandria province. The obtained results revealed that the incidence of *E. coli* in the examined samples of luncheon, frankfurter, Keshta and smoked turkey breast was 18, 16, 6 and 8%, respectively. Serotyping of the obtained isolates of Enteropathogenic *E. coli* revealed the detection of $O_{111}$ serotype **(**EHEC), $O_{124}$ serotype **(**EHEC), $O_{26}$ serotype **(**EHEC), $O_{128}$ serotype **(**ETEC) and $O_{86}$ serotype **(**EPEC). In addition, the incidence of *Salmonellae* in the examined samples of luncheon, frankfurter, Keshta and smoked turkey breast was 6, 4, 4 and 2%, respectively and serotyping of the obtained isolates of *Salmonellae* revealed the detection of *S. Enteritidis*, *S. Typhimurium* and *S. Kentucky*. Also, the incidence of *Y. enterocolitica* in the examined samples of luncheon, frankfurter, Keshta and smoked turkey breast was 8, 4, 4 and 14%, respectively while the incidence of *C. jejuni* in the examined samples of luncheon, frankfurter, Keshta and smoked turkey breast was 4, 2, 4 and 6 %, respectively. Based on the recorded results, it was clear that the rates of isolation of the investigated pathogenic bacteria were higher in chicken luncheon and smoked turkey breast as compared to chicken frankfurter and chicken Keshta that may be attributed to the hygienic conditions of the working places and the awareness of the workers.

**Bacteriological Quality and Safety of Egyptian Beef Burger**

**Heba M.Shaheen, Hosny A. Abdelrahman; Ali M. Ahmed; Soad A. Soliman**

Dept., of Food Hygiene, Faculty of Veterinary Medicine, Suez Canal University

**Abstract**

Meat products are among the leading vehicles for foodborne illnesses around the world and are responsible for millions of sickening each year. Beef burger is a perishable food item by the nature and requires protection from microbial contamination during their preparation, storage, and distribution. A total of 20 packages of frozen beef burger were evaluated for bacteriological and foodborne pathogens. Aerobic colony count was 100% in all examined beef burger samples with a mean value of $5.7\times10^4\pm1.7\times10^4$cfu/g. The incidence of *Bacillus cereus* in beef burger samples was 75%.Total *Bacillus cereus* count of beef burger samples ranged from <10 to $25\times10^5$ cfu/g with a mean value of $2.2\times10^4\pm3\times10^3$cfu/g. The incidence of *Staphylococcus aureus* in beef burger samples is 45%.The total *S. aureus* count of beef burger samples ranged from <10 to $2\times10^5$ cfu/g with a mean value of $2\times10^4\pm1\times10^3$ cfu/g. The incidence of *Escherichia coli* in beef burger is 45%. Salmonella was failed detection in all examined samples.

**Effect of Olive and Fig Leaves Extracts on the Viability of Food Poisoning Pathogens in Beef Burger**

**Heba M. Shaheen, Hosny A. Abdelrahman; Ali M. Ahmed; Soad A. Soliman**
Dept. of Food Hygiene, Faculty of Veterinary Medicine, Suez Canal University

**Abstract**

Meat products are among the leading vehicles for foodborne illnesses around the world and are responsible for millions of sickening each year. Olive and fig leaf extract can be considered as a plant antimicrobial with both antibacterial and antioxidant activities they has been shown to have antibacterial activities against foodborne pathogens such as *Staphylococcus aureus, Escherichia coli, Salmonella spp*. In addition, they has been shown to enhance the quality and shelf-life of meat The average value of initial microbial load of total aerobic count in examined beef burger samples (control group) was $9.9\times10^4\pm 2\times10^4$ (cfu/g).where it significantly ($p < 0.05$) decreased to $4.6\times10^3 \pm 3\times10^2$, $2.8\times10^2 \pm 9\times10$ (cfu/g) by increasing the OLE concentration to (3% and 4%) and $1.3\times10^3 \pm 4\times10^2$, $2.4\times10^2 \pm 7\times10$ (cfu/g) by increasing the fig leaves extract to (4% and 5%) respectively. The average value of initial *Bacillus cereus* count of beef burger samples (control group) was $5.4\times10^3 \pm 1\times10^3$ (cfu/g). The *Bacillus cereus* count in treated samples was significantly ($p < 0.05$) decreased to $2.1\times10^2\pm 1\times10^2$, $1.2\times10\pm$ <10 (cfu/g) by increasing the OLE concentration to (3% and 4%) and $0.3\times10 \pm$ <10, $0.2\times10 \pm$ <10 (cfu/g) by increasing the fig leaves extract to (4% and 5%) respectively. The average value of initial *S. aureus* count of beef burger samples (control group) was $4\times10^4 \pm 2\times10^3$ (cfu/g). The *S. aureus* count in treated samples with OLE was significantly ($p < 0.05$) decreased to $2.3\times10^3 \pm 7\times10^2$, $8\times10^2 \pm 1.7\times10^2$ (cfu/g)by increasing the OLE concentration to (3% and 4%) respectively, while its count was not significantly ($p>0.05$) affected in treated samples with different concentration of fig leaves extract ($1.7\times10^4 \pm3\times10^3$, $6.7\times10^3 \pm6.7\times10^3$ (cfu/g)) for 4% and 5%concentrationsrespectively.the initial load of *E. coli* in untreated samples (control group) was 80%. The incidence of *E. coli* in treated samples with OLE was significantly decreased to 15% and 5% by increasing the OLE concentration to (3% and 4%) respectively. While it was not affected by different concentrations of fig leaves extract where its incidence was 80% and 70% in treated samples with 4% and 5% fig leaves extract respectively.

# Molecular differentiation and antimicrobial resistance patterns of *Salmonella enteritidis and Salmonella typhimurium* from different food samples

Eman Nabil Abdelfatah[a]*, Asmaa Salah Mohamed[a], and Samah Saeed Abdellatif [a]

[a] Department of food control, Zagazig university, Zagazig city, 44511, Sharkia, Egypt.
*Corresponding author: Eman N. Abdelfatah, E. Mail: Emannabil1982@yahoo.com.

**Abstract**

This study was applied to differentiate between *Salmonella enteritidis* (*S. enteritidis)* and *Salmonella typhimurium* (*S. typhimurium)* because of their importance for public health, epidemiologists, and the poultry industry, and to assess their pathogenic potential and antimicrobial resistance. For this purpose a total of 135 different food samples was studied, where only 8 *Salmonella* isolates were detected. The presence of virulence and antimicrobial resistance genes associated with the isolated strains was investigated by PCR, and the results of the analysis of five virulence genes showed that 100% of the examined strains were positive for *invA*, *stn*, *fimH*, and *spvC* genes, while only 62.5% were positive for *pefA* gene. Regarding the antimicrobial resistance, the highest resistance frequencies of the isolates were to ampicillin followed by nalidixic acid. All ampicillin-resistant Salmonella isolates harbored the *blaTEM* gene, while none of these isolates carried the *blaSHV* gene.

**Key words:** *Salmonella enteritidis; Salmonella typhimurium; RAPD PCR; virulence.*

# QUALITY INDICATORS OF SOME FROZEN FISH AND FISH PRODUCTS MARKETED IN SHARKIA PROVINCE, EGYPT

Sara Mohammed El Nahal*, Abd-Elsalam E. Hafez*, Wageh Sobhy Darwish* and Rasha M. El Bayomi*

Food Control Department, Faculty of Veterinary Medicine, Zagazig University, Zagazig 44519, Egypt

## Abstract

Fish and fish products are one of the most consumed meals in the world particularly, Egypt. They are very rich in all essential nutrients as well as high palatability and easy digestion. However, this high nutritional value, fish can be contaminated by different types of microorganisms which affect its bacteriological and chemical quality. Therefore, the presented study was conducted to evaluate the bacteriological quality of some fish species marketed in Zagazig city, Sharkia governorate, Egypt such as mackerel, fish fillets and herring by counting the total aerobic bacteria, psychrophilic bacteria and proteolytic bacteria. As well as, chemical evaluation of the examined fishes by detection of histamine content. Results of a bacteriological examination revealed that, 100%, 76%, and 37.3% of the examined fishes were contaminated by aerobic, psychrophilic and proteolytic bacteria, respectively. The mean count of total bacteria, psychrophilic, and proteolytic bacteria was 5.79±0.194, 2.81±0.494, and 1.98±0.511 log cfu/g, respectively in mackerel, while, 5.48±0.202, 3.88±0.523, and1.61±0.457 log cfu/g, respectively in fish fillets and 5.27±0.177, 3.36±0.441, and1.28±0.395 log cfu/g, respectively in herring. Chemical examination of fish samples revealed contamination of the examined fishes with histamine but all samples were within the permissible limit. This study therefore, recommended that fish and fish products must be subjected to proper handling and adequate heat treatment before consumption.

**Key words:** Fishes, Aerobic bacterial, Psychrophilic bacteria, Proteolytic bacteria, Histamine.

# Nutritional and economical evaluation of dried kitchen wastes (DKW) as an unconventional feeds with or without L-carnitine supplementation in broiler chicken diets

**Anaam E. Omar[1], Shimaa A. Amer*[1], Heba S.A. Gharib[2]**

[1] Department of Nutrition and Clinical Nutrition, Faculty of Veterinary Medicine, Zagazig University, 44511, Egypt. [2]Public Health department, Faculty of Veterinary Medicine, Zagazig University, Zagazig, 44511, Egypt

***Corresponding author:** Shimaa Ahmed Ibrahim Mohamed Amer. E-mail: shymaa_amer@yahoo.com or shimaa.amer@zu.edu.eg

**Abstract**

The impact of dietary inclusion of dried kitchen wastes "DKW" at 10 & 20 % with or without L-carnitine supplementation at 250 mg/ kg diet was evaluated for broiler chicken performance and economic efficiency of the diets. Results revealed that the broilers fed diets contained 10&20% DKW with L- carnitine, and 20% DKW without L- carnitine had significant (*P≤0.05*) heavier final BW, BWG and best FCR. Total feed intake significantly increased (P≤0.05) in group fed diet contained DKW 20% without L- carnitine. Carcass parameters were non-significantly affected (P>0.05) except GIT weight was significantly (P≤0.05) decreased through group2-5 and abdominal fat% was significantly decrease (P≤0.05) in groups fed on diets contained 10%, 20% DKW with L-carnitine. Diets contained 10%, 20% DKW with L-carnitine significantly (P≤0.05) decreased total cholesterol, triglycerides and LDL levels. Total leukocytic count, absolute heterophil count and absolute lymphocyte significantly decreased (P≤0.05) in groups fed diets contained 10%, 20% DKW with L-carnitine and 10% DKW without L- carnitine. GM of NDHI antibody titers non significantly (P>0.05) affected through group2 -5 versus control group. Groups fed diets contained 10%, 20% DKW with L-carnitine and 20% DKW without L- carnitine significantly increased (P≤0.05) the total return and net profit. Economic efficiency was significantly increased while Feed cost/ kg gain significantly decreased by inclusion of diets with 10&20% DKW with L-carnitine. Conclusion, inclusion of 10 and 20% DKW with of L-carnitine supplementation in broiler chicken diet had positive effects on growth performance and economic efficiency.

**Key words:** Broiler chicken;Dried kitchen waste; L-carnitine;Growth performance; Economic efficiency.

# Effects of Probiotic or Prebiotic on Florfenicol Pharmacokinetic in Broiler Chickens

Hazem M. Shaheen[1], Yasser S. El-Sayed[2], Magdy Abd Elaziz[3], Ashraf Darwish[4], Samy Abdallah[4]

Department of Pharmacology, Faculty of Veterinary Medicine, Damanhour University, Egypt[1]

Department of Veterinary Forensic Medicine and Toxicology, Faculty of Veterinary Medicine, Damanhour University, Egypt[2]

Department of Pharmacology, Faculty of Veterinary Medicine, kafr Elsheikh University, Egypt[3]

Unit of Pharmacology, Department of chemistry, Animal health research institute, Egypt [4]

## Abstract

The effect of prebiotic or probiotic feed additives on the pharmacokinetic profile of florfenicol in broilers was evaluated. Two hundred, 1-day old unsexed broiler chickens, were divided into four equal groups (n=50); the first was administrated florfenicol (intravenous once at a dose of 30 mg/kg body weight) without pre- or probiotic co-administration. While, the second was administrated florfenicol (intracrop routes; a dose of 30 mg/kg body weight for five successive days) without pre- or probiotic co-administration. The third and fourth groups were administrated the same level of florfenicol (intracrop route), following 10 days of prebiotic or probiotic treatment respectively for five successive days. Plasma florfenicol concentrations were determined by high-performance liquid chromatography (HPLC) after the first florfenicol administration (intravenous or intracrop routes) in all groups. Then, tissue residual levels of florfenicol in liver, kidney and muscles after oral administration of florfenicol (30-mg⁄kg body weight) from the second, third and fourth groups were evaluated. The results demonstrated that broilers pretreated by prebiotic or probiotic induced a significance elevation in $C_{max}$, $AUC_{0-t}$, $AUC_{0-inf}$ and AUMC values, whereas, a significance drop in V/F and CL/F were recorded. The systemic florfenicol bioavailability were 73% and 71% after prebiotic or probiotic treatments, respectively. Beside, prebiotic or probiotic influenced on florfenicol cumulative effect in liver and kidney tissues of treated birds.

**Keywords:** pharmacokinetics, HPLC, drug interactions, florfenicol, probiotic, prebiotic.

# Quality and Safety of Tilapia and Mullet Fish on Shore of Manzala Lake and Port Said Markets

***Manar, A. Abdalla; Abdelrahman, A.H and Taghreed, A. Hafez***
*Food Hygiene Department, Faculty of veterinary Medicine Suez Canal University.*

## Abstract

Ninety six fish samples of fresh fish, 48 each of Tilapia and Mullet species, 24 samples of each were collected from the on Shore of Manzala Lake and 24 samples of each were collected from Port Said markets, Egypt. The samples were examined for the total aerobic plate count, total coliform count, E.coli count in addition to detection of salmonella and Shigella to evaluate the fish quality and safety. The mean values of TAPC, TC and E.coli in the examined Tilapia fish samples on shore and markets were 3.6 x $10^{2,}$ $7.3x10^{1}$ and $1.5x10^{1}$; $6.8x10^{3}$, $1.4x10^{3}$and $2.1x10^{1}$ CFU/g, respectively. While Salmonella and Shigella not detected in 25 g in both on shore and markets fish samples. The mean values of TAPC, TC and E.coli in the examined Mullet fish samples on shore and markets were 5.6 $x10^{2}$, $4.2x10^{1}$ and $1.2x10^{1}$; $1.4x10^{3}$, $5.3x10^{1}$ and $1.6x10^{1}$ CFU/g, respectively. While Salmonella and Shigella were not detected in 25 g in both on Shore and markets fish samples. The significant importance for the bacterial profile revealed that an increasing in the contamination % in TAPC, TC and *E.coli* in Tilapia and Mullet fish samples between the on shore and Markets samples, the increased contamination percentages were 18.9%, 19.2% and 1.4% ; 2.5%, 1.3% and 1.3%, respectively.

# Pathological lesions and economic loss for poultry slaughtered at Suez, governorate, Egypt

**Ismail S. A.S[1]. Dalia, .H.Mansour[2], Amina A. dessouki[3], and Gehad S. Elasra**

1 *Department of Food Hygiene, 2 Department of poultry &rabbit diseases, 3 Dept. of Pathology, Faculty of Veterinary Medicine, Suez Canal University, Ismailia, Egypt*

## Abstract

This study was an abattoir survey, undertaken for a period of one full year at two traditional abattoirs in sues city, Egypt. The aim of this research was to detect the principal reasons for condemnation of poultry carcasses in two slaughterhouses (A and B). The principal causes of condemnation observed in both abattoirs were hepatitis, enteritis, skin abrasions, cellulitis, wings fracture, and pericarditis as well as contamination due to gut severance at evisceration. During the survey, a total of 122036 poultry in abattoir A and 102173 poultry in abattoir B were slaughtered. Postmortem inspections revealed 400 (0.33%) carcasses in abattoir A and 520 (0.51%) carcasses in abattoir B were totally condemned. In abattoir A, hepatitis, was the main cause of condemnation (15%) ,enteritis (10%,) skin abrasions ( 5%), celluilitis (5%), wing fractures (12%),and pericarditis 5% . while In the second abattoir( B) , the major causes of condemnation were (17%) due to hepatitis, enteritis,(12%) skin abrasions,(4%) , celluilitis (4%) , wing fractures (9%), and pericarditis(6%). The condemnation of poultry carcasses and edible offals represent a significant economic loss to traders and poultry industry. The direct economic losses due to poultry carcass condemnation were calculated by the following formula, and procedure: DFL= C × P × W, DFL (in abattoir A) was 19440 while in abattoir B was 25272 pounds. In conclusion, abattoir records show a wide spectrum and types of pathological lesions that occurring in poultry. The present study provides baseline data for the future monitoring of clean poultry production in Suez abattoirs. The condemnation of poultry carcasses and edible offal represent a significant economic loss to traders and poultry industry.

# Heavy metal concentrations and human health risk of Duck and Geese retailed in El Sharkia Governorate

**Abd-Elsalam E. Hafez,* Rasha M. El Bayomi,*Shimaa Saeid Mohamed**

Food Control Department, Faculty of Veterinary Medicine, Zagazig University, Zagazig 44519, Egypt

## Abstract

Eighty samples from breast muscles and liver tissue of duck and geese retailed for human consumption were randomly collected from Zagazig city, Sharkia Governorate, Egypt. The collected samples were analyzed for estimation of the residual concentrations of copper (Cu), cadmium (Cd), lead (Pb), zinc (Zn), and mercury (Hg) by using Atomic Absorption Spectrometry (AAS). All the evaluated liver samples from both ducks and geese had higher concentrations of all tested heavy metals than the muscle samples of the same poultry. Zinc metal had the highest concentration in all estimated samples and Cd element had the lowest residual concentrations. Moreover, metal's dietary intake and health risk assessment among Egyptian adult consumers were calculated. Livers had higher metal residues compared with the muscles in both duck and geese. The potential risk assessment of all investigated metals in poultry meat revealed no significance risk on consumers from consumption of muscle and liver of both ducks and geese. Meanwhile, continuous intake of metals even at low concentrations may cause severe toxicological risk.

**Keywords:** Poultry, Heavy metals, Risk assessment

# Improving silage quality and Performance and behavior of mulard ducklings fed complete silage ration supplemented with organic acids.

***Rania El Sayed [1,*], Doaa Ibrahim[1], Enas N. Said [2]***

[1] Department of Nutrition and Clinical Nutrition, Faculty of Veterinary Medicine, Zagazig University, Egypt
[2] Department of Veterinary Public Health, Faculty of Veterinary Medicine, Zagazig University.
[*] Corresponding author: Dr.Rania El Sayed, E-mail: doibrahim@vet.zu.edu.eg.
Ranyasoliman1979@yahoo.com. enasnassef5@gmail.com

## Abstract

The goal of this study was to evaluate the effects of different levels of organic acids (AOs) on silage quality and growth performance, digestibility, carcass traits and behavior of mulard duckling fed anaerobically fermented feed. Mulard duckling (n=200) was divided randomly into four groups of five replicate each. four diets were formulated as follows: control silage diet without additives (S1) and inoculum of 0.5,1 and 2% of organic acids blend were used for 2nd (S2), 3th (S3) and 4th (S4) treatments during starter and finisher period. The results revealed that, addition of AOs to silage decreased nutrient loss during fermentation process and significantly decreased population count of selected microorganisms. Moreover, concentration of lactic acid and propionic acids were significantly increased, and butyric acid concentration was significantly decreased with increasing level of AOs to silage after ensiling. The results related to growth performance revealed that the highest body weight and body weight gain were observed in the group supplemented by 2% organic acids. Moreover, the improved feed utilization and protein efficiency ratio were recorded in groups fed on complete ration silage supplement with 1 and 2%. AOs followed by groups supplemented with 0.5% AOs when compared with the control group. Also, nutrient digestibility of ducks was improved with increasing level of AOs supplementation for silage. Addition of AOs blend to silage has a positive significant effect on carcass weight and breast and thigh yield. The crude protein content was increased in breast and thigh, also the amount of fat was decreased in breast meat while it was not affected in thigh meat by addition of AOs. Concerning the eating and drinking frequencies were the highest in control and silage supplemented with 0.5% AOs when compared with silage supplemented groups with 1 and 2% AOs. Ducks reared in silage with 2% AOs diet were more active, as expressed by greater walking, wing shaking, leg stretch, preening and flying. Briefly, the results on performance suggested that addition of AOs to silage improved its quality and greatly affects duckling's performance.

# Chemical and Histological Quality of Oriental Sausage Produced at Lower Commercial Grades

**Nancy Samir M.Rabii, Ali Meawad Ahmed, Makram Ahmed M. Yassien**

Dept. of Food Hygiene, Faculty of Vet. Med., Suez Canal University

## Abstract

Fresh sausage is one of the most popular further processed meat products. It is formulated from a combination of raw ingredients which yield a final product of acceptable quality and competitive price. Moreover, the high chemical and histological quality is necessary to improve the processed the final products. Therefore, the sums of 100 samples of fresh sausage (class II & class III) were collected from different localities of Ismailia governorate and evaluated for histological and proximate analysis. All sausage samples contain skeletal muscles less than that recommended by Egyptian Slandered, however all of the examined samples were contain excess of adipose tissue, non-skeletal tissues and gristly tissues. The mean of moisture, protein, fat and ash content of the lower grade sausage (III) was 52.12, 4.59, 35.01 and 6.21 respectively. The mean of moisture, protein, fat and ash content of the high grade sausage (II) was 60.07, 14.72, 28.61 and 4.37 respectively. The obtained results were compared to Egyptian Standard and suggestions were given to improve the chemical and histological quality of the oriental sausage traded at Ismailia markets.

# Improve the Bacteriological Quality of the Oriental Sausage Using Pomegranate Peel Extracts

**Nancy Samir M. Rabii, Ali Meawad Ahmed, Makram Ahmed M. Yassien**

Dept. of Food Hygiene, Faculty of Vet. Med., Suez Canal University

**Abstract**

Oriental sausage are popular now because they fit into today's busy life style. Therefore, meat investigators have been challenged all over the world to extend their shelf-life. The pomegranate is one of the oldest known fruits, scientifically known as *Punicagranatum Lnn*, which widely cultivated due to its excellent nutritional and health value. Their peel extracts in concentrations of 1%, 2% and 3% were studied for improving the bacteriological quality of the oriental sausage. Total aerobic plate counts over the period of storage under refrigeration; where it attained to zero cfu/g after 6 days with all of the pomegranate extracts concentrations corresponding 4.1 x $10^3$cfu/g. Both of the Enterobacteriaceae and *E. coli* cannot be detected in samples prepared with 3% extract after 9 days storage at $4.0^{O}C \pm 1.0^{O}C$, meanwhile, the Salmonella group failed detection.

**Effect of heat treatment on microbial contamination in marketed fish**

**Adel I. El-Atabany; Mohamed A. Hussein, Eman E. Esmail**

Department of Food Hygiene, Faculty of Veterinary Medicine, Zagazig University

**Abstract:**

A total of 90 random samples of *Oreochromis niloticus (O. niloticus)* were collected from different markets and restaurants in Daqahlya province to study the effect of heat treatment on microbial contamination. The bacteriological examination was practiced through examination of aerobic plate count, total Staphylococcal count and total Enterobacteriaceae count in raw and treated samples. Results revealed that mean values of aerobic plate count were $3.5x10^5 \pm 2.15x10^5$, $3.3x10^3 \pm 0.905x10^3$ and $1.632x10^4 \pm 0.2899x10^4$. Mean values of total Staphylococcal count were $2.15x10^5 \pm 1.29x10^5$, $1.8x10^4 \pm 2345x10^4$ and $3.7x10^4 \pm 0.442x10^4$. Mean values of total Enterobacteriaceae count were $2.05x10^5 \pm 1.23x10^5$, $2.64x10^4 \pm 0.6153x10^4$ and $5.28x10^4 \pm 0.8266x10^4$. In raw, fried and grilled O. niloticus respectively. It is very important to study hazards of improper cooking and treatment of fish on human health.

**Keywords:** staphylococcus, enterobacteriaceae, food poisoning.

# Quality Evaluation of Retailed Fresh Water Fish at Alexandria Province

**Kamel, A.A, Samaha, I.A and Ahmed, A.A**

Department of Food Hygiene, Faculty of Veterinary Medicine, Alexandria University

## ABSTRACT

A total of 150 random samples, of retailed fresh water fish, 50 of each (Tilapia nilotica, Mugil cephalus , Clarius lazera) were randomly collected from different fish markets at Alexandria province are subjected to chemical and microbial analysis for safety and quality assessment .The results showed that the mean values of pH for the examined samples of Tilapia nilotica, Mugil cephalus and lazera were 5.93±0.03, 6.29±0.06 , 6.20±0.04 and 6.39±0.03 mg/100g respectively; the mean values of total volatile nitrogen was 10.62±0.27,8.76±0.31 and 17.51±0.29 mg/100g, respectively; the mean values of trimethylamine were 4.35±0.38, 3.59±0.22 and 4.86±0.15 mg/100g, respectively; the mean values of thiobarbituric acid was 1.18±0.19, 1.82±0.14 and 2.21±0.13 mg/100g, respectively; while, the mean values of free fatty acid were 0.31±0.02, 0.23±0.01and 0.38±0.01 mg/100g, respectively. The results of microbial analysis showed that the mean values of aerobic bacterial count was $8.4\times10^5\pm7.2\times10^4$ for Tilapia nilotica, $4.6\times10^6\pm9.2\times10^5$ for Mugil cephalus and $3.6x10^6\pm8.2x10^5$ cfu/g for Clarius lazera; the mean values of Enterobacteriaceae count were 1.3x105±7.2x104 for Tilapia nilotica, $2.6x10^5\pm9.2x10^4$ for Mugil cephalus and $2.2\times10^5\pm 8.2\times10^4$ cfu/g for Clarius lazera; the mean values of *Staphylococcus aureus* count was $9.2x10^2\pm2.6x10^2$ for Tilapia nilotica, $1.5x10^3\pm7.4x10^2$ for Mugil cephalus and $8.9x10^2\pm5.4x10^2$ cfu/g for Clarius lazera; while, the mean values of mould and yeast count were $3.8x10^2\pm9x10$; $1.9x10^3\pm1.3x10^2$; respectively for Tilapia nilotica, $7.2x10^2\pm2.1x10^2$;$8.9x10^3\pm1.9x10^2$; respectively, for Mugil cephalus and $6.6x10^2\pm1.9x10^2$;$8.9x10^3\pm2.1x10^2$cfu/g for Clarius lazera. This study showed the degree of contamination of Tilapia nilotica, Mugil cephalus and Clarius lazera. In addition, the public health importance of such contaminates has been discussed

**Keyword:** fresh water fish, pH, Total volatile nitrogen, Trimethylamine, Enterobacteriaceae, Staphylococcus, mould and yeast.

**Comparative Studies of Food Poisoning *Salmonella* among Slaughtered Animals**.

**Abdelsalam E. Hafez*, Abdallah F. A. Mahmoud*, Hassan M. Hussain*, Sara M. Misbah***
Food Control Department, Faculty of Vet. Medicine, Zagazig University, Egypt.

**Abstract:**

*Salmonella* is one of the major zoonotic foodborne pathogens worldwide. The presented study find out that the level of *Salmonella* contamination on cattle skin excision, fresh carcasses, liver, kidney and swabs after transportation and display at abattoir and butcher shops at Sharkia Governorate, Egypt. A total of 444 fresh Cow (50), Buffalo (48) and Camel (13) carcasses represented by Liver, Kidney, Swab and Skin excision samples The collected samples were subjected to isolation and identification of *salmonella*. Rate of resistant of the streptomycin was 100%, 96.2% for erythromycin, cefotaxim (80.8%), nalidixic acid (69.2%), sulphamethoxazol (65.4%), chloramphenicol (53.8%) and amikacin (50%). On contrary the sensitivity was 96.2% for gentamicin, (84.6%) ciprofloxacin, (73.1%) ampicillin and 76.9% for kanamycin. The high level of resistance may be due to many bacteria come in a close contact with many types of antibiotics miss used in animal medication, these processes contribute to resistance by overexposing cultures to these bactericidal or bacteriostatic chemicals. The data showed that 71.4 % of *S. Typhimurium* isolates displayed five or more antimicrobial resistant profiles. 80 % of *S. Enteritidis* isolates displayed five or more antimicrobial resistant profiles, 75 % of *S. Infantis* isolates displayed five or more antimicrobial resistant profiles. Furthermore, multiple antibiotic resistance (MAR) index of isolated *Salmonella species* ranged from 0.143 to 1 with an average of 0.483. The MAR index results was higher than 0.2 this may be due to a contamination from high-risk sources, such as farm animals frequently exposed to antibiotics, resulting in potential risk to consumers. The reduction percent of the used disinfectants increased by the time to reach 100% or nearly approach it in a case of most used disinfectants. Besides alkadox followed by aldekol were the most superior disinfectant while, swift was the least one.

# Evaluation of heavy metal levels in some meat products

**Alaa El-Dien M.A. Morshdy,Wageh S. Darwish Waiel M. Salah El-Dien* ,and Sahar, M., Khalifa***

Food Control Department, Faculty of Veterinary Medicine, Zagazig University,
* Food Control Department, Animal Health Research Institute, Zagazig Prov. Lab.

## Abstract

Thirty samples of minced meat, sausage and beef burger (10 for each) were collected randomly from different markets of Zagazig city in Sharkia Governorate, Egypt for detection and estimation of heavy metal residues (lead and cadmium). Atomic absorption spectrometry was employed for detection of lead and cadmium residues in the examined samples. The results of the heavy metal residues in the examined meat products concluded that, the mean values of lead and cadmium residues were 1.12 ±0.13and0.06 ±0.01 ppm in the examined minced meat samples respectively; while, in sausage the mean concentrations of the mentioned elements was 0.72 ±0.10 and 0.07 ±0.01 ppm respectively. The mean levels of these elements in the burger samples was 1.00±0.10 and 0.05±0.01ppm respectively. The lead residues were detected in all examined samples and exceeded the permissible limits in 9 ( 90 % ) , 7 ( 70 % ) and 9 ( 90 % ) of minced meat , sausage and burger samples respectively , whereas, 6 ( 60 % ) , 7 ( 70 % ) and 5 ( 50 % ) of the mentioned meat products respectively contained cadmium in levels exceeded the recommended permissible limits.

# Risk assessment of some heavy metals in some imported frozen fish

**Rasha M. El Bayomi[1], Abdallah Fikry A. Mahmoud[1]**
[1]Department of Food Control, Faculty of Veterinary Medicine, Zagazig University, Egypt
Correspondence: rmazab_2010@yahoo.com

## Abstract

The study was conducted to determine the residual concentration of Cd, Cu, Pb and Hg of three imported frozen fish collected from Zagazig City markets, Sharkia province, Egypt, and to estimate the dietary intake of such metals, as well as to assess the potential health risks associated with the consumption of such fish. Therefore, a total of 60 fish samples, 20 each of, Brush tooth lizard fish, Mackerel fish and Horse mackerel fish, were analyzed for the residual concentration of these metals using atomic absorption spectrophotometer (AAS). The obtained results revealed that the mean residual concentration of Cadmium (Cd) in Brush tooth lizard fish, Mackerel fish and Horse mackerel fish was 0.039±0.009, 0.037±0.04, 0.043±0.006 mg/kg, respectively, while those of Lead (Pb) were 0.70±0.16, 0.40±0.11, 0.75±0.25 mg/kg, respectively. Regarding Mercury (Hg), they were 0.076±0.036, 0.48±0.14, 0.38±0.12 mg/kg, respectively, and Copper (Cu) mean residual concentration accounted for 0.46±0.15, 0.49±0.19, 0.34±0.13 mg/kg, respectively. Some of the investigated fish samples showed higher heavy metals' concentrations of Cd, Pb and Hg that exceed the recommended safety limits outlined by EOS (2010), while all the examined fish samples were 100% within the maximum permissible limits of copper. The total estimated daily intakes (EDI) of Cd, Pb, Hg and Cu were 0.074, 1.17, 0.59 and 0.82 µg/kg bw/day, respectively, that were below the tolerable daily intake (TDI) recommended by the Joint Expert Committee on Food Additives (JECFA). Referring to the potential health risks of investigated fish, it was estimated that the target hazard quotient (THQ) of Hg (1.03) and the total THQs (1.12) of mackerel fish exceeded 1, indicating possible health risks, while the total THQs (TTHQs) of other two fish were lower than 1 as compared to the reference doses. The obtained results give us an alarm that the consumer could be under health risks so in-depth future studies on imported frozen fish in our country is recommended.

**Keywords:** Frozen fish, Heavy metals, PTDIs, THQ, Health hazards

# Efficiency of Proteomic vs standard biochemical methods for identification of dairy coliforms

**Rania A. Abdelkader, Magdy S. Elsayed, Mohamed A. Bayoumi, Rania M. Kamal**

## Abstract

A recent proteomic method (MALDI-TOF MS) was tested in this study to evaluate its efficiency in detection of coliform organisms. For this, a total of 250 samples of raw milk, Kareish cheese, yoghurt, laban rayeb and ice cream (50 each) were collected randomly from different shops and supermarkets in Sharkia governorate for enumeration and identification of coliform organisms. Results revealed that the logarithmic (log) mean values of total coliform count were11.2±11.02, 8±7.7, 5.4±5.05, 6.3±5.2 and 5.2±4.9 cfu/g in raw milk, Kareish cheese, yoghurt, labanrayeb and ice cream respectively. Biochemically, the majority of the coliform isolates from the examined samples were *Escherichia coli* followed by *Klebsiella pneumoniae*, *Enterobacter aerogenes* and *Citrobacter freundii*. Application of MALDI-TOF MS for routine identification of isolated coliform organisms revealed about 80% similarity to biochemical standard identification. This needs to be more clarified using molecular methods. However, MALDI-TOF MS is a more rapid and cost-efficient than conventional phenotypic technique.

**Biocontrol of *E.coli* among poultry carcasses using bacteriophage**

**AlaaEldin M. A. Morshdy, El-said A. El-Daly, Abd- El-salam E. Hafez and Karima M. Eissa**

Food Control Department, Faculty of Veterinary Medicine, Zagazig University, Zagazig 44519, Egypt

**Abstract**

Bacteriophages isolated from different samples of sewage water were collected randomly from different location in Sharkia province and by electron microscope examination of phage solution and revealed that the phage virus belong to *Myovirdie family* (double strand DNA virus) that had lytic effect on *E.coli*. The count of *E.coli* in artificially inoculated chicken fillet after treatment with different concentration of bacteriophage for 30 minutes was 5.43 ± 0.06, 5.40 ± 0.06, 5.36 ± 0.08 and 5.32 ± 0.07 log $_{10}$ cfu/g in control, $10^6$, $10^9$ and $10^{12}$ pfu/ml of bacteriophage, respectively. The achieved reduction counts and percentages were 0.06 (6.67%), 0.15 (14.89%) and 0.22 (22.38%), in $10^6$, $10^9$ and $10^{12}$ pfu/ml of bacteriophage, respectively. The count of *E.coli* in artificially inoculated chicken fillet after treatment with different concentration of bacteriophage for 60 minutes was 5.5 ± 0.06, 5.28 ± 0.01, 5.18 ± 0.04 and 4.94 ± 0.09 log $_{10}$cfu/g, respectively in control, $10^6$, $10^9$ and $10^{12}$ pfu/ml of bacteriophage, respectively. The achieved reduction counts and percentages were 0.40 (39.74%), 0.52 (52.14%) and 0.72 (72.46%), respectively of concentration of phage$10^6$, $10^9$ and $10^{12}$ pfu/ml. The count of *E.coli* in artificially inoculated chicken fillet after treatment with different concentration of bacteriophage for 120 minutes was 5.59 ± 0.06, 5.36 ± 0.03, 5.25 ± 0.05 and 4.85 ± 0.13 log $_{10}$ cfu/g, respectively in control, $10^6$, $10^9$ and $10^{12}$ pfu/ml of bacteriophage, respectively. The achieved reduction counts and percentages were 0.41 (41.12%), 0.54 (54.29%) and 0.82 (81.80%), respectively of concentration of phage $10^6$, $10^9$ and $10^{12}$ pfu/ml.

**Key words:** Bacteriophage, sewage samples, *E.coli*, electron microscope.

# EFFECTS OF SOME FOOD ADDITIVES ON REFRIGERATED FISH

**Morshdy. A.M; Hussien , M. A. and ELshimaa, A . N**
Department of Food Hygiene, Faculty of Veterinary Medicine, Zagazig University

**Abstract:**

The present study was performed to evaluate the effect of dip treatments by Cumin (Cuminum cyminum) oil (0.5% &1.0%) and Garlic (Allium sativum) oil (0.5% &1.0%) on the shelf life, chemical quality and sensory attributes of bayed (Bagrus Bayad) and common carp (Cyprinus Carpio) fish fillets during refrigerated storage at 4±1$^{O}$C. The control (untreated) and treated groups were examined periodically at day zero and every 3 days (0, 3, 6, 9, 12, 15) during refrigeration with sensory and physicochemical methods. The chemical analyses showed that the high concentration (1.0 %) of essential oils demonstrated significant reduction in total volatile base nitrogen (TVBN), trimethylamine (TMA) and thiobarbituric acid (TBA-RS) in treated fish fillets slices when compared with the control. The obtained results showed that EOS have strong antioxidant activity and can maintain the quality parameters and extend the shelf life of refrigerated fish fillets treated with cumin 1% and garlic 1% for 3 and 6 days, respectively longer than control one (9 days). In a conclusion, the EOs of garlic, and cumin should be utilized as a safe method for extending the shelf-life and enhancing quality attributes of fish fillets during cold storage, which is quite promising for food industry.

**Keywords:** EOs of garlic and cumin, Chemical quality, Sensory attributes, Shelf life, bayed and common carp fish fillets.

# Prevalence of Antibiotic Resistant *Salmonella* in Fish and Shell Fish in El Sharkia Governorate

**Alaa Edin M. A Morshdy, Rasha M. El Bayomi, Aya E. Abo Elfadl**

Department of Food Hygiene, Faculty of Veterinary Medicine, Suez Canal University

**Abstract:**

A total of 80 Fresh fish and Shell fish samples (Tilapia, Mullet, Shrimp and Crab) were collected from different localities in Zagazig city, Sharkia Governorate, Egypt. The prevalence of *Salmonellae* in the examined fish were 30% , 10% , 0% , 0% in the examined Tilapia, Mullet, Shrimp and Crab samples, respectively. Five *Salmonella* serotypes were recorded as 3 (15%) *S.enteritidis*, 2 (10%) *S.typhimurium*, 1 (5%) *S.essen*, 1(5%) *S.infantis* and 1 (5%) *S.saintpaul*. *Salmonella* serotypes could be identified in both Tilapia and Mullet. *Salmonella* was sensitive to gentamicin (87.5%) ampicillin (62.5%). All isolated *Salmonella* were resistance to streptomycin (100%), Erythromycin and Vancomycin (87.5%). A PCR test was performed to detect the blaTEM gene in isolated *Salmonella*. Results revealed that blaTEM genes were present in all identified serotypes.

**Keywords:** Salmonella spp., antibiotic resistance, blaTEM, PCR

**Control of contaminated water with *E.coli O157&O111* by using bacteriophage**

**Abd El Kader.M.A, Zaki.M.S.A, Abd- El-All.A.M, Askora.A.A, Mai.F.S**

**Dep. of Vet .Public Health. Faculty of Vet .Med. Zagazig University**

This study aimed to investigate the effect of isolated bacteriophage HZ1 on controlling of *E.coli* O157&O111 in drinking water samples. The results showed that the mean of *E.coli* O157 count in artificially infected water samples were 10.471±0.003, 9.646 ±0.92, 9.251± 0.14, 9.071±. 0.15 and 1.767±. 0.94 $\log_{10}$ cfu/ml, in control, MOI 1, MOI 5, MOI 10 and MOI 15 respectively. There was a significant difference between samples (P< 0.05) as the higher reduction percent was recorded at MOI 15 with reduction percent of 99.6% and lower reduction percent was recorded at MOI 1 with reduction percent 79.1%. Concerning the effect of Ø HM1 on water samples artificially infected with *E.coli* O 111 the mean of *E.coli* O111 count were 10.471 ± 0.002, 9.850 ± 0. 64 , 9.693 ± 0.052, 9.048 ± 0.12and 1.840 ± 0.98 $\log_{10}$ cfu/ml , in control, MOI 1,MOI 5 , MOI 10 and MOI 15 respectively. There was significant differences between samples (P< 0.05) as the higher reduction percent was recorded at MOI 15 with reduction percent of 98.8% and lower reduction percent was recorded at MOI 1 with reduction percent 68.13%. The effect of phage on both serotypes *E.coli* O 157 and O111 at the same sample. the mean of *E.coli* count was 10.477 ±.00 , 10.194± .042, 9.895± .029 , 9.699± .065 and 5.839± 1.27log $_{10}$ cfu/ml , in control, MOI 1,MOI 5 , MOI 10 and MOI 15 respectively. There was significant differences between samples (P< 0.05) as the higher reduction percent was recorded at MOI 15 with a reduction percent of 89.1% and lower reduction percent was recorded at MOI 1 with a reduction percent 44.3%. It was also clear that the count of *E.coli* O 157 and *E.coli* O111 reached to zero after 4h of incubation for MOI 15 while it reached to zero after 8h of incubation in samples which infected with both serotypes at the same time.

# Isolation and characterization of a *Myoviridae* phage for controlling pathogenic*Vibrio parahaemolyticus* from seafood and humans in Egypt.

**Abdallah M. A. Merwad[1,*], Taisir S. Mohamed**

[1]Department of Zoonoses, Faculty of Veterinary Medicine, Zagazig University, Egypt
[2]Department of Medical Microbiology and Immunology, Faculty of Medicine, Zagazig University, Egypt.

*****Corresponding author: Abdallah M. A. Merwad; Tel:+2/01008079363; merwad.abdallah@yahoo.com.

**Abstract:**

*Vibrio parahaemolyticus* is a zoonotic pathogen causing vibriosis in marine fish and associated with food poisoning outbreaks in humans. This study aimed to isolate and characterize bacteriophage against multidrug resistant (MDR) *Vibrio parahaemolyticus* from seafood and humans, and also to assess the lytic efficacy of phage on growth of such pathogenic microorganism. *Vibrio Parahaemolyticus* was isolated from flesh of 80 white shrimp, 70 blue crabs and 50 mullets, and from hand swabs of 50 fish sellers on thiosulphate citrate bile salts sucrose agar media. The suspected colonies were biochemically identified. Pathogenic *V. parahaemolyticus* carrying thermostable direct hemolysin (*tdh*$^+$) gene was molecularly detected by polymerase chain reaction. *tdh* gene was positive in 60% (9/15); 44.4% (8/18); 35.7% (5/14) and 42.8% (3/7) of *V. parahaemolyticus* isolates from shrimp, crabs, mullets and fish sellers, respectively. The pathogenic *tdh*$^+$*V. parahaemolyticus* (n=25) isolates were tested for antimicrobial susceptibility against 12 antimicrobials using the disc diffusion method. Fifteen isolates of *tdh*$^+$*V. parahaemolyticus* were 100% resistant to five antimicrobials. Bacteriophage was isolated from sewage water using spot test and double over layer agar assay. The recovered phage designated as phiVibrioH1 was belonged to family *Myoviridae* according to transmission electron microscopy. This study revealed a polyvalent phage infecting wide host range of MDR *V. parahaemolyticus, V. vulnificus, V. fluvialis, V. alginolyticus Pseudomonas aeruginosa, E. coli* O26 and *Proteus vulgaris*. The myovirus had burst size of 120 plague forming unit (PFU/infected bacterial cell) with latent period of 40 min. The genome of phage was sensitive to digestion with *Bam*H1 and *ECo*R1 restriction enzymes indicating double stranded DNA. The lytic efficacy of phiVibrioH1was estimated on the growth of two isolates of *V.parahaemolyticus* by measuring the optical density (OD) of the liquid media during *Vibrio* growth at 37 °C and at multiplicity of infection (MOI) of 1.0. Significant reduction was found in OD of *V. parahaemolyticus* co-treated with the bacteriophage after 24 h incubation compared to the controls ($P<0.05$ and induced complete lysis at 36 h incubation. Our study confirmed that the phiVibrioH1 is a lytic phage and has a high potential to control pathogenic *V. parahaemolyticus* strains recovered from seafood and humans.

# Use of thermosonication for inactivation of *Enterococcus sakazakii* (*Cronobacter sakazaki*) in market reconstituted skim milk beverages

**Mohamed E. A. Alnakip[1*]**

[1]Food Control Department, Faculty of Veterinary Medicine. Zagazig University, Egypt,

[*]**Corresponding Author:** Dr./ Mohamed E. A. Alnakip, Food Control Department, Faculty of Veterinary Medicine, Zagazig University, Al Sharkia, 44519, Egypt. Phone: +201007167000; E-mail: Alnakip.me@gmail.com

***Abstract***

*Enterobacter sakazakii* (*Cronobacter sakazakii*) was associated with serious illness in human consumers, particularly infants. Such pathogen is greatly linked to milk powder and powdered infants` formula since it is thermos-tolerant than most other Enterobacteriaceae; which may contribute to its survival of heat treatments, and subsequent presence in desiccated products. The current study comparatively validated the efficacy of themosonication (TS) in controlling such pathogen in reconstituted skim milk powder (RSMP) beverages collected from different shops and markets at Zagazgig City, Elsharkia governorate, Egypt. An in vitro model has been designed for subjecting the *E. sakazakii* -inoculated samples to different combinations of temperature against high energy/low-frequency ultrasound for a specific time. The results demonstrated complete decontamination of the pathogen within sonication at 50 ºC/25 min, 55 ºC/15 minutes and 60 ºC/5 min. Meanwhile, for TSB broth inoculated solutions, the potential of ultrasound was higher, and a complete decontamination has been assigned at 50 ºC/15 min and 55 ºC/5 minutes. Regarding pH, the TS has resulted in non-significant ($P< 0.05$) decrease compared to thermal treatment alone. The results showed the promising potential of TS as alternative processing/preservation technique for RSMP beverages.

**Prevalence of *Listeria* among poultry caracasses**

Alaa El-Dien Morshdy[1], Adel El-Atabany[1], Mohamed A. Hussein[1], Saleh shafik[2] and Aiman M. Ahmed[2]

[1]. Dept. Food Hygiene, Faculty of Vet. Med., Zagazig University, Egypt

[2]. Food Control Department, Animal Health Research Institute, Mansoura Branch, Egypt

**Abstract:**

A total of 200 fresh chicken samples comprising thigh , breast muscle, gizzrad and liver samples (50 for each), were randomly collected from different localities and poultry shops of different sanitation levels at Mansoura city, Dakahlia, Egypt to evaluate its status and determine the prevalence of *Listeria* species which may be existed. The results declared that *Listeria* spp. was isolated from 42 (21%) of all samples. 9 (18%) , 10 (20%) , 8 (16%) , 15 (30%)from thigh, breast , gizzard and liver samples respectively .The serological results revealed that *L. monocytogenes* in the chicken samples was 2 (4%) , 4 (8%) , 1 (2%) , 3 (6%) from thigh, breast , gizzard and liver samples respectively, while *L.welshemeri* was 11 (2 for breast muscle and 3 for each of thigh muscle , gizzard and liver samples), *L.innocua* was 16 (7 for liver samples and 3 for each of thigh muscle , gizzard and breast samples) . *L.muryi* was 5 (2 for liver samples and 1 for each of thigh muscle, gizzard and breast samples.Further identification of *L. monocytogenes* was applied by using PCR technique.

**Key words:** chicken meat, *L.monocytogenes*, virulence gene,

# Prevalence, putative risk factors for cross sectional epidemiology of *Fasciola* infection in sheep in the Nile Delta of Egypt with special highlighting on its economic consequences

**Abdelgawad S. El-Tahawy[1,*], Nabil Mohamed Bakir[2], Noha Abdallah[2]**

[1]Department of Animal Husbandry and Wealth Development, Faculty of Veterinary Medicine, Damanhour University
[2]Department of infectious Diseases, Faculty of Veterinary Medicine, Damanhour University
* Corresponding author: abdelgawad.tahawy@vetmed.dmu.edu.eg.

**Abstract**

Risk factors related to herd and farmer status, farm and pasture management, and environmental factors were examined for their association with the prevalence of *Fasciola* infection in sheep farms in four represented provinces of Nile Delta region (Beheira, Kafr-Sheikh, Menofia and Alexandria). The study method involved the collection of fecal samples and coprological examination using standard sedimentation technique and questionnaire survey. A total of 4920 sheep (n= 80 flocks) were sampled from total of 140 flocks which were requested to participate in this study. The sampling method has involved all age group, sex, breeds, body condition scores, diverse flock sizes, and different ecological conditions. Based on this study the overall prevalence of ovine fascioliasis was found to be 17.87%, and the prevalence was higher in baladi breed (21.86%) than Rahmani (13.58%) and barki breed (18.12%). The final logistic model showed that ovine fascioliasis was associated with lower prevalence in summer (OR 0.24; CI: 0.14-0.39), spring (OR 0.15; CI: 0.09-0.26), and winter (OR 0.41; CI: 0.29-0.59) when compared with autumn. In addition, flock size ranged 100-150 (OR 2.81; CI: 2.00-3.96) and over 150 (OR 1.91; CI: 1.42-2.57) per flock were associated with higher prevalence of *Fasciola* than flocks ranged less than 100. In regard to the ecological conditions, it has been investigated that *Fasciola* infection in sheep in the regions of relative humidity ranged 50-60 (OR 0.34; CI: 0.23-0.51) and over 60 (OR 0.61; CI: 0.45-0.84) was associated with lower prevalence than humidity less than regions of relative humidity less than 50. Referring to the economic impact of ovine fascioliasis, the total weight of infected sheep with *Fasciola* was significantly lower (44.17 kg) than those free (55.29) and the value of weight reduction estimated for the infected sheep was 301.55 Egyptian pound (EGP). Moreover, average treatment cost for a single sheep suffered 46.22 EGP and the mortality value for three-dead sheep was 4800 EGP. In a conclusion, the results may help to formulate appropriate control strategies in Egypt and other areas with similar climatic conditions in order to channel limited resources to mitigate only those risk factors which are significant to protect the profitability of the livestock industry.

**Keywords: O**vine, *Fasciola*, Economic impact, Prevalence**.**

**Incidence of antibiotic resistant Vibrio in marketed Fish in El Sharkia Governorate**

Alaa El-Dien Morshdy, Mohamed A. Hussein, Rasha M. El Bayomi, Ahmed R. El-Ghandour

Food Control Department, Faculty of Veterinary Medicine, Zagazig University, Egypt

**Abstract**

Vibrio species are major seafood-borne pathogens that causing gastroenteritis as a serious disease of human public health due to consumption of raw unprepared or undercooked fish. A total of 80 fish samples (Nile tilapia, Nile perch, Grey mullet and Sea bass) (20 of each) were randomly collected from local market at Zagazig city to investigate the prevalence of Vibrio species in local marketed fish. The results revealed that Vibrio species isolated with a percentage of 13% in Nile tilapia, 80% in Nile perch, 73% in Grey mullet and 47% in Sea bass with an overall percentage of 53% of all examined fish. The isolated Vibrio species were 41% *V. parahaemolyticus*, 25% *V. alginolyticus*, 22% *V.mimicus*, 9% *V.vulnificus* and 3% *V.cholera*. The antimicrobial resistance patterns of isolated Vibrio species revealed that most vibrio isolates were resistance to Ampicillin (100%), Nalidexic acid (88.3%), Streptomycin (84.2%), Sulphamethoxazol (70.7%) and Oxytetracycline (64.8%) and the sensitivity to Amikacin (94%), Ciprofloxacin (70.5%), Gentamicin (58.9%). Dipping of tilapia in lemon juice 5% for 30 min reduced *Vibrio parahaemolyticus* count by 0.31log cfu/g **(45.88%).** In conclusion, our results confirm contamination of fish by antibiotic resistant vibrio. Dipping of fish in lemon juice is an efficient strategy in reducing *Vibrio parahaemolyticus* load in fish.

**Keywords: Fish, *Vibrio Spp.*, Antibiotic resistance.**

**Effect of marinating solution on Pseudomonas bacteria isolated from meat**

**Abd-Elsalam E. Hafez, Rasha M. El bayomi, Doaa Mohammed Fathy**
Department of Food Hygiene, Faculty of Veterinary Medicine, Zagazig University

**Abstract:**

A total of 80 random samples of fresh and frozen meat were randomly collected from butcher shops at Zagazig city, El-Sharkia governorate, Egypt. The collected samples were bacteriologically examined for Pseudomonas species count. Pseudomonas spp. detected in fresh and frozen meat with a prevalence of 72% and 80%, respectively. The mean *Pseudomonas spp.* counts ranged from 3.6 to 6.15 and 5 to 7.37 $\log_{10}$ cfu/g with mean values of 4.3±0.15 and 6.3 ± 0.15 $\log_{10}$ cfu/g in fresh and frozen meat sample, respectively. The sensory evaluation of the inoculated meat samples by *Pseudomonas aerogenosa* during chilling (4ºC) were enhanced by using a marinade mixture of black pepper, lactic acid 1%, lemon juice, soya sauce and onion powder for 48 hrs. Generally, the lemon juice marinade samples for 48 hrs reflect the highest enhancement of sensory characters, while the lactic acid marinade for 24 hrs revealed the lowest one.

**Keywords:** Meat, Pseudomonas, Marinade.

# Prevalence and Antibiotic Resistance Pattern of *E. coli* and Salmonella Isolates from Zagazig abattoir

**Ehab Nabawy [1], Ahmed E. Tharwat [2] and Waleed Rizk EL-Ghareeb [2,3]**

[1] Department of Veterinary public health, Faculty of Veterinary Medicine, Zagazig University, 44511, Egypt
[2] Department of Food control, Faculty of Veterinary Medicine, Zagazig University, 44511, Egypt
[3]Department of Veterinary Public Health and Animal Husbandry, Collegeof Veterinary Medicine,King Faisal University, Saudi Arabia
Corresponding author: Dr. Waleed R. El-Ghareeb, drwaleedrizk@gmail.com

## Abstract

The effect of abattoir environment on the level of carcasses contamination was studied, this task was achieved after collection of 130 samples from Zagazig abattoir represented by hundred swabs of abattoir walls, abattoir floors, knives, worker's hand, cattle and camel carcass surfaces. In addition to thirty water samples collected from the input water, carcass washing water, wastewater (10 of each). The prevalence of *Escherichia coli* (*E.coli*) was 60, 100, 30, 30, 00, 60, 100, 30, 70, 40, 60, 20, and 30%. Meanwhile the prevalence of Salmonella was 40, 70, 10, 00,00, 30, 80, 10, 40, 00, 20, 00, 10% in examined walls, floors, knives, worker's hand, input water, washing water, waste water, cattle thigh, cattle shoulder, buffalo thigh, buffalo shoulder, camel thigh and camel shoulder, respectively. Enterohemorrhagic *E.coli* $O_{26}$:$H_{11}$ 15/130 (11.53%) and *Salmonella typhimurium* 9/130 (6.92%) were predominant species among examined samples. Hundred percentage of isolated *E.coli* was resistant to penicillin and sensitivity was (77.8%) and (92%) for ciprofloxacin and gentamicin. Salmonella species showed 100% resistance to streptomycin and sensitivity was (77.4%) and (93.5%) for ciprofloxacin and gentamicin. Both of *E.coli* and Salmonella isolates showed multi antibiotic resistant (MAR). The public health importance of isolates was discussed.

**Key words:** Abattoir, carcasses, E.coli, Salmonella, Prevalence, Antibiotic, resistance.

**Prevalence of ochratoxin residues in table eggs in Sharkia Governorate**

Asmaa B.M.B. Tahoun*, Madeha A.H. Ayoub, Esmat I. Elsaeid, and Samah M. Halawa

*Corresponding author e-mail: (dr.asmaatahoun@gmail.com)

*Food Control Department, Faculty of Veterinary Medicine, Zagazig University, Egypt.*

***Abstract***

Fifty random samples of farm and domestic eggs (25 of each) were collected from different farms and markets in Sharkia Governorate, Egypt. A survey was conducted to determine the incidence of ochratoxin A by immune affinity column method and reading by VICAM fluorometer in parallel with standards of ochratoxin A. It's evident from the obtained results that all examined farm and domestic eggs samples were contaminated with ochratoxin A by a percentage of 100% with mean values of 0.240 ± 0.003 and 0.183 ± 0.011 ppb in farm eggs and in domestic eggs respectively. All examined farm and domestic eggs samples were exceeding the permissible limits according to Egyptian standards (2005), the United States standard (2005) and European commission limits (2006). The presence of ochratoxin A in the examined farm and domestic eggs samples in detectable limits was considered as risk factor in hens eggs production. Consequently, more restriction and preventive measures should be taken in hen's farms, feed factories in respect to quality control, health care and also feed content.

# Hygienic aspects on microorganisms recovered from poultry environments at Sharkia governorate

**Amira S.A. Attia**

Department of Veterinary public Health, Faculty of Vet. Medicine, Zagazig University, Egypt

## Abstract

The intention of this research was to isolate bacterial pathogens from environmental samples in poultry farms .The antibiotic susceptibility of the isolated bacteria was also, established in this work. A total of 108 environmental samples taken from drinkers, litter, bird dropping and feeders were aseptically collected from 3 poultry farms located in Sharkia province, Egypt. All isolates were identified by their morphological characteristics, and conventional biochemical tests. Antibiotic sensitivity of the selected bacteria was determined by disc diffusion method. The prevalence of the following pathogens at poultry farm was *E.coli* (74.1%), *Aeromonas hydrophila* (41.7%), *Aeromonas caviae* (37.03%), *Pseudomonas aeruginosa* (24.1%) and *staphylococcus aurues*. (32.41 %). Antibiotic sensitivity test revealed that 41, 39, 27 and 23% of *E.coli* were sensitive to ciprofloxacine, enrofloxacine, chloramphenicol and tetracycline, respectively. Moreover, 80*% of Aeromonas sp.* was found sensitive to ciprofloxacin. All *Pseudomonas aeruginosa* was found resistance to amoxicillin, ampicillin and tetracycline. *Staph. aureus* isolates were more susceptible to ciprofloxacin (82.7%) and less susceptible to erythromycin (44.6%) and amoxicillin (13.8%). This study highlighted a serious problems posed environment and public health due to carless use of antibiotics in poultry industry. Consequently, it should be continued development of biosecurity methods, follow the guideline in using of antimicrobial drugs in the farms to reduce risk of development of resistant bacteria and minimize its transfer to human being. Inspection of litter for antibiotic residues before marketing is also, necessary.

# Hygienic quality of chicken meat sold at Sharkia governorate

Alaa El-Dien Morshdy, Mohamed A. Hussein, Rasha M. El Bayomi, Noha Mostafa El Said

Food Control Department, Faculty of Veterinary Medicine, Zagazig University, Egypt

## Abstract

Chicken meat is an excellent source of high quality protein, minerals and vitamins in addition to low fat and cholesterol level compared with red meat. A total of hundred chicken meat samples collected from poultry slaughter houses in Zagazig city, Sharkia governorate, Egypt. The samples were subjected to organoleptic and bacteriological examination. The organoleptic examination revealed that all examined chicken fillet samples was normal (100%). The mean count of aerobic plat count, psychrotrophic, *Enterobacteriaceae* and Staphylococci ranged from 6.9 to 7.08, 6.78 to 6.9, 5 to 5.08 and 4.9 to 5.08 $\log_{10}$cfu/g with mean values of 6.98±0.05, 6.82±0.04, and 5.05±0.26 and 4.98±0.52 $\log_{10}$cfu/g in the examined chicken fillets, respectively. Thyme oil and nigella oil were used to improve chicken meat quality and to extend the shelf life of meat. In a conclusion, dipping of chicken fillet in thyme and nigella oil 0.4% was the best to enhance the sensory evaluation, decrease the bacterial count, extend the shelf life of chicken fillet to 9 days and therefore increase the quality of such chickens.

# Response of Productive Performance, Some Blood Parameters and Intestinal Microbiology of Broiler Chickens to Magnetic Technology of Water

**M.A. Soltan[*], H.A. Ahmed[**] and R.S. Shewita[*]**

Alexandria University, Faculty of Veterinary Medicine, Department of Nutrition and Clinical Nutrition.
[**]Damanhour University, Faculty of Veterinary Medicine, Department of Nutrition and Clinical Nutrition. Egypt
Corresponding author: Hamada Ahmed E. mail: Hamada_nutrition@yahoo.com

**Abstract**:
Forty eight one-day old Cobb broiler chicks were used to investigate the effect of magnetized water treatment on growth performance, immune response, some blood parameters, carcass traits and intestinal microbiology of broiler chicks. Chicks were randomly allotted into 2 groups (24 chicks per group and 3 replicate for each), first group drank normal tap water and considered as control, while the other drank magnetized water treatment for continuous 6 weeks. Magnetized water treatment significantly improved final body weight, daily gain, feed conversion ratio, protein efficiency ratio and performance index by about 7.3%, 7.4%, 11.7%, 23.3% and 20.6% respectively, while decreased total feed intake throughout the whole experimental period by about 4% when compared with the control. Moreover, magnetized water treatment improved total protein and globulin blood serum concentration and improved liver function through reduction of GPT, GOT and cholesterol serum concentrations when compared with the control. Magnetized water treatment improved antibody titer production and immune organs relative weights and significantly improved dressing percent, while had no significant effect on the other carcass traits. Magnetized water treatment significantly reduced total intestinal bacterial count and Coliforms bacteria by about 39.3% and 40% respectively, while significantly increased lactic acid bacteria count by about 44.4% and non-significantly increased lactobacillus bacteria counts by about 14.6% when compared with control group. Magnetized water treatment for broiler chicken improve performance, improve immune response, protect liver and regulate intestinal microflora.

**Key words:** Magnetic water, Broiler chickens, Growth performance, Immune response, Intestinal microbiology.

# Some bacteriological changes in chilled minced meat

**El-Said A. Eldaly, *Mohamed A. Hussein, Abdallah F. Mahmoud, Karima M. Eissa,* Amira M. *Mahmoud***

Department of Food Hygiene, Faculty of Veterinary Medicine, Zagazig University

**Abstract:**

Ten kilograms of beef meat (round meat) were obtained 24 hours after slaughter the meat was minced as coarse ground beef and immediately transported to the laboratory of meat hygiene faculty of Veterinary Medicine Zagazig University, Egypt. Minced meat was divided into four batches: Control group, Chitosan treated group, Sodium lactate treated group and Rosemary treated group. Microbiological analysis include aerobic plate count, Pseudomonas count and total Staphylococci count for all groups. The APC at zero time was 4.9 ± 0.6× $10^5$, 1.8 ± 0.4× $10^5$, 7.1 ± 0.7× $10^4$ and 13.2 ± 0.9× $10^4$ CFU/g in control, rosemary, sodium lactate and chitosan groups, respectively. On the 3rd day of chilling at 4± 1o C the APC was 4.2 ± 0.5× $10^6$, 6.1 ± 0.41× $10^5$, 1.2 ± 0.11× $10^5$ and 2 ± 0.21× $10^5$ CFU/g in control, rosemary, sodium lactate and chitosan groups, respectively. Furthermore, APC mean values were 1.8 ± 0.15× 107, 2.1 ± 0.32× 106, 1.4 ± 0.06× $10^6$and 2.1 ± 0.10× $10^6$ CFU/g, respectively on the 5th day of chilling. Finally,on the 7th day of storage the APC counts were 15 ± 1.6× $10^7$, 23 ± 0.98× $10^6$, 5.3 ± 0.71× $10^6$ and 7.2 ± 0.53× 106 CFU/g in control, rosemary, sodium lactate and chitosan groups, respectively. The Staphylococcus count The Staphylococcus count at zero time was 15 ± 2× 103, 7 ± 0.92× $10^3$, 2 ± 0.45× $10^3$ and 5 ± 0.82× $10^3$ in control, rosemary, sodium lactate and chitosan groups, respectively. On the 3rd day of chilling at 4± 1 °C the Staphylococcus counts were 4 ± 0.91× $10^4$, 1.3 ± 0.58× $10^4$, 7 ± 1.02×$10^3$ and 10.2 ± 1.61×$10^3$ in control, rosemary, sodium lactate and chitosan groups, respectively. Furthermore, Staphylococcus mean values were 12 ± 2.1× $10^4$, 5.1 ± 0.85× $10^4$, 2.11 ± 0.43× $10^4$ and 4 ± 0.91× $10^4$, respectively on the 5th day of chilling. Finally, the Staphylococcus counts were 25± 4.2× $10^4$, 13 ± 1.51× $10^4$, 8 ± 1.0$^3$× $10^4$ and 9.8± 1.2× $10^4$ in control, rosemary, sodium lactate and chitosan groups, respectively. The Pseudomonas count at zero time was 10 ± 1.45 × $10^2$, 6 ± 1.02× $10^2$, 2 ± 0.41×$10^2$ and 4.5 ± 0.74× $10^2$ CFU/g. in control, rosemary, sodium lactate and chitosan groups, respectively. On the 3rd day of chilling at 4± 1° C the Pseudomonas counts were 1.8 ± 0.31× $10^3$, 9 ± 1.10× $10^2$, 5 ± 0.91× 102 and 7 ± 1.12× 102 CFU/g. in control, rosemary, sodium lactate and chitosan groups, respectively. Furthermore, Pseudomonas mean values were 7.2 ± 0.84× $10^3$, 3.3 ± 0.32× $10^3$, 1.3 ± 0.11× $10^3$ and 2.4 ± 0.21× $10^3$ CFU/g, respectively on the 5th day of chilling. Finally, the Pseudomonas counts were 9± 1.41× $10^4$, 4.21 ± 0.63× $10^4$, 8.4 ± 0.24× $10^3$ and 3.4± 0.47× $10^4$ CFU/g in control, rosemary, sodium lactate and chitosan groups, respectively.

**Keywords:** Minced meat, Staphylococcal count, Chitosan.

**Food poisoning bacteria in marine fish**

**Alaa ELdin M. Morshedy, Ahmed E. Tharwat, Azza K.M. ELSafee**

Department of Food Hygiene, Faculty of Veterinary Medicine,Zagazig University

**Abstract:**

One hundred samples of the common marketed marine water fish *Sparus aurata, Argyrosomus regius, Pagrus pagrus, Mullus surmuletus* and *Dicentrachus labrax* (20 for each) were collected from the fish market in Sharkia Governorate, Egypt The bacteriological examination was applied for detection of Vibrio species.Vibrio species were detected within percentages of 80, 45, 60, 40 and 75% in examined *Sparus aurata, Argyrosomus regius, Pagrus pagrus, Mullus surmuletus* and *Dicentrachus labrax,* respectively in examined marine fishes. The average percentage was 60% overall examined marine fish. The identified species *Vibrio. fluvialis* were detected in 4(20%), 5 (25%), 4(20%), 6(30%) and 7 (35%): *Vibrio mimicus* was detected in 3(15%), 1 (5%), 3(15%), 2(10%) and 1 (5%); *Vibrio alginolyticus* was detected in 4(20%), 2 (10%), 1(5%), 2(10%) and 2 (10%); *Vibrio parahaemolyticus* was detected in 6(30%), 2 (10%), 3(15%), 1(5%) and 2 (10%) of examined *Sparus aurata, Argyrosomus regius, Pagrus pagrus, Mullus surmuletus* and *Dicentrachus labrax,* respectively. *Vibrio cholera* was detected in 2(10%), 1(5%) and 1 (5%) of examined *Sparus aurata, Mullus surmuletus* and *Dicentrachus labrax,* respectively. *Vibrio vulnificus* was detected in 2(10%), 1(5%) and 3 (15%) of examined *Sparus aurata, Pagrus pagrus* and *Dicentrachus labrax,* respectively. Fish fillets were artificially inoculated with the identified *Vibrio parahaemolyticus* then divided into three groups (control, lemon juice and garlic juice 2 % dipped groups for 15minutes) then the counts per gram of fillets were calculated. The counts of *V. parahaemolyticus* in examined fish fillet groups were 12 $x10^6 \pm$ 0.19 $x10^6$, 15.5 $x10^5 \pm$ 0.12$x10^5$ and 9.6 $x10^5 \pm$ 0.16$x10^5$ CFU/g of control, lemon extract 2% and garlic extract 2%, respectively. The reduction percentages were 87% and 92% after dipping for 15minutes in lemon extract 2% and garlic extract 2%, respectively.

**Some heavy metal residues in marketed slaughtered goats and their offals**

**Alaa Eldin M. A. Morshdy, Rasha M. El Bayomi, Ghada M. Abd El Galil**

Department of Food Control, Faculty of Veterinary Medicine, Zagazig University

Correspondence: Zonfoly_1 @yahoo.com

**Abstract:**

A total of 30 samples of muscle, kidney and liver of goat were collected from different abattoirs at Zagazig City for a determination of some heavy metal residues. The results revealed that the mean heavy metals concentration was 0.18±0.08, 0.36±0.07 and 0.64±0.98ppm for copper (Cu), 0.02±0.002, 0.03±0.01 and 0.04±0.03 ppm for cadmium (Cd), 0.42±0.11, 0.43±0.09 and 0.69±0.09 ppm for Lead (Pb) 5.74±0.49, 3.32±0.11 and3.35±0.37 ppm for Zinc (Zn) and 0.86±0.23, 1.06±0.39 and1.24±0.23ppm for Mercury (Hg) in muscle, kidney and liver samples, respectively. The investigated heavy metals analyzed showed higher concentration levels in the order: Pb= Cd > Hg were above the recommended safety limits of Egyption Organization Standered (2010) as 40%, 40% and 20% from Pb, Cd and Hg, respectively, exceed permissible limits. All the examined samples (100%) were within the maximum permissible limits of Copper (Cu) and Zinc (Zn). The estimated daily intake (EDI) of Cu, Cd, Pb, Zn and Hg for the examined meat samples was below the tolerable daily intake (TDI). The Target hazard quotient (THQ) of Cu, Cd, Pb, Zn and Hg from consumption of meat ( muscle, kidney and liver )was less than one which means that there was no problem from consumption of this meat, but the problem still as human exposed to heavy metals from other sources of air, water, vegetables and other food sources.

# Recent Studies on Staphylococcus Food Poisoning In Fresh and Salted Fish

**Adel I.El- Atabany, *Mohamed A. Hussein, Abdallah F. Mahmoud, Karima M. Eissa* , Nora G. Moustafa**

Department of Food Hygiene, Faculty of Veterinary Medicine, Zagazig University

**Abstract:**

A total of 100 random samples of *Mugil cephalus, Sardina pilchardus, Oreochromis niloticus,* salted *Mugil cephalus* (fesikh) and salted *Sardina pilchardus* (salted sardine)] were collected from different markets in El-Sharkia Governorates, Egypt. The collected samples were bacteriologically examined for total Staphylococcal count and *Staphylococcus aureus* count. The incidence of staphylococcus was 70, 85 and 65% with mean values of $6.3 \pm 1.1 \times 10^{3,}$ $15 \pm 2.4 \times 10^{3}$ and $3.5 \pm 0.61 \times 10^{3}$CFU/g for examined fresh Mugil cephalus, Sardina pilchardus and Oreochromis niloticus. The incidence of Staphylococcus was 100 % in salted feseikh and sardine and the mean counts were $6.2 \pm 1.2 \times 10^{5}$ and $3.8 \pm 0.9 \times 10^{4}$ CFU/g, respectively. The incidences of S.aureus were 12 (60%), 15 (75%) , 9 (45%) ,18 (90%) and (16) 80% with mean values of $2 \pm 0.4 \times 10^{3}$, $7.2 \pm 1.4 \times 10^{3}$, $10 \pm 1.42 \times 10^{2}$ , $2 \pm 0.54 \times 10^{5}$ and $2.5 \pm 0.81 \times 10^{4}$ CFU/g in examined Mugil cephalus, Sardina pilchardus, Oreochromis niloticus , feseikh and sardine, respectively.

**Keywords:** Staphylococcal count, Sardina pilchardus.

**Some probable risks from consumption of ready to eat shawarma**

Adel I .M. El Atabany, Ahmed E. Tharwat, Abdallah F. Mahamoud and Reham F. Mahfouz

Food Control Department, Faculty of Veterinary Medicine Zagazig University, El-Zeraa Str. 114, Zagazig 44511, Egypt

**Abstract**

One hundred and twenty samples of ready to eat shawerma were collected randomly from different restaurants and street vendors at Sharkia governorate, Egypt, at different sanitation levels. The collected samples represented meat samples as (30 each of plain meat shawarma, meat shawerma with additive, plain chicken shawerma, chicken shawerma with additive). The collected samples were examined for detection of *S.aureus* and Staphylococcal enterotoxins.The Staphylococci was detected in 18 (60%), 27 (90%), 21(70%) and 30 (100%) with a mean value ± SE of $13.4\times10^2 \pm 3.2\times10^2$, $9.3\times10^3 \pm 1.8\times10^3$, $11.6\times10^2 \pm 4.3\times10^2$ and $5.3\times10^4 \pm 1.3\times10^4$ CFU / g of examined plain meat shawarma, meat shawarma with additives, plain chicken shawarma and chicken shawarma with additives, respectively.The incidence of *S.aureus* was 9 (30%), 22 (73.3%), 7(23.33%) and 24 (80%) with a mean value of $3.8\times10^2 \pm 1.2\times10^2$, $5.6\times10^3 \pm 2.4\times10^3$, $4.22\times10^2 \pm 1.13\times10^2$ and $3.8\times10^4 \pm 0.9\times10^4$ CFU/g of examined plain meat shawarma, meat shawarma with additives, plain chicken shawarma and chicken shawarma with additives, respectively.The percentage of good, accepted, unsatisfactory and potentially hazardous was 70%, 13.4%, 16.6% and 0 %, respectively in plain meat shawarma. The percentages were 26.6%, 23.4%, 20% and 30%, respectively in meat shawarma with additive. The percentages were 76.6%, 20%, 3.4 % and 0% in plain chicken shawarma, respectively. Finally, the percentages were 20%, 13.4%, 30% and 36.6% considered as good, accepted, unsatisfactory and potentially hazardous.The results showed DNA expression of *S. aureus* enterotoxins genes by using multiplex PCR of *sea*, *seb*, *sec* and *sed* enterotoxin genes for characterization of *S. aureus*; it was found 8/11 isolates were enterotoxin producing strains, 4 strains of *S.aureus* carry *sea* gene, 5strain carry *sec* gene, 2 strains carry *seb* gene, 1 strain carry *sea* plus *sec* gene and 1strain carry *sea* plus *seb* plus *sec*.

# Chemical Quality of Locally and Imported Canned Sardine

**Hasna….., Ali Meawad Ahmed, Ahmed I. Youssef***

Dept. of Food Hygiene, *Division of Zoonoses, Faculty of Veterinary Medicine, Suez Canal University.

**Abstract:**

Canned sardine is widely consumed in Egypt because it is a cheap, delicious, rich source of high quality easily digestible protein, minerals, vitamins and omega-3 fatty acids. Therefore, a total of 30 samples of locally and imported canned sardines (15 each) were collected within their validity date from different markets at new Damietta city, Egypt for chemically evaluation. The mean moisture, protein, fat and ash values for locally canned sardine samples were 61.02, 22.64, 12.64 and 1.49 respectively. The mean moisture, protein, fat and ash values for imported canned sardine samples were 56.72, 18.55, 24.01 and 3.00. Protein content of local canned sardines is significantly higher ($P<0.05$) than for the imported once due to the locally canned sardine is manufactured from the sardine fillet only. The mean sodium chloride, total volatile nitrogen and histamine content values for locally canned sardine samples were 1.85, 35.65 and 11.89 respectively. The mean sodium chloride, total volatile nitrogen and histamine content values for imported canned sardine samples were 1.23, 31.79 and 11.28 respectively. The mean concentration levels of cadmium in the locally canned sardine were 0.03 and 0.09 ppm respectively. The mean concentration levels of lead in the imported canned sardine were 0.162 and 0.299 ppm respectively. The results of the current study indicated that there are no differences in the chemical quality between locally and imported canned sardine samples under investigation. Both at high range are going to fit the Egyptian Slandered permissible limits in concern to chemical analysis profiles. From that it could be recommend that: Strike monitoring of chemical quality of the canned sardine traded at the markets to control their nutritive values, safety and quality.

**Improvement of Quality and Shelf-Life of Meat by *Laurus nobilis***

[1]Hany Ramadan Salama, [1]Ebeed Saleh, [2]Alaa Eldin Morshdy and [3]Atef M.K. Nasser

[1]Food Hygiene and Control Department, Faculty of Veterinary Medicine, Damanhour University, Damanhour, El-Beheira, Egypt. [2]Food Hygiene and Control Department, Faculty of Veterinary Medicine, Zagazig University, Zagazig city, Sharkia, Egypt.[3]Plant Protection Department, Faculty of Agriculture, Damanhour University, Damanhour, El-Beheira, Egypt.

**Abstract**

Fresh meat is a highly perishable product due to its unique biochemical composition. Plant essential oils (EOs) serve as a safe alternative to synthetic antimicrobials (preservatives) that extend shelf-life of meat. Therefore, the aim of this study was to evaluate the effect of EOs of Laurel leaves (*Laurus nobilis* L.) on shelf-life, microbiological, chemical, and sensory characteristics of meat during chilling storage (4 ±1˚C). A total of 363 meat samples (divided into 4 trials) were collected from different butchers at Damanhur city, El-Beheira, Egypt. The effectiveness of Laurel's EO at concentrations of 0.0, 0.25, 0.5, and 1% as a natural preservative. Chemical, microbial, and sensory evaluation were carried out after 0, 3, 6, 9, 12, 15, and 18 days of storage. Results showed significant preservative effect of 0.25, 0.5, and 1% of the EO up to the 15th day of storage. Moreover, significant enhancements of the microbiological, chemical and sensory parameters of treated meat samples were reported compared with the control group, which spoiled at the 6th day of storage. Overall, the results of this study indicated that essential oils of leaves of Laurel would be applied on meat before storage to improve its qualities, safety, and storability.

# Enhancement of Quality Characteristics and Shelf–Life of Tilapia (*Oreochromis niloticus*) Fillets by Propolis

[1]Marwa Fikry Waly Eldein, [1]Ebeed Saleh, [2]Alaa Eldin Morshdy and [3]Atef M.K. Nasser

[1]Food Hygiene and Control Department, Faculty of Veterinary Medicine, Damanhour University, Damanhour, El-Beheira, Egypt. [2]Food Hygiene and Control Department, Faculty of Veterinary Medicine, Zagazig University, Zagazig city, Sharkia, Egypt.[3]Plant Protection Department, Faculty of Agriculture, Damanhour University, Damanhour, El-Beheira, Egypt.

## Abstract

Fish is not only susceptible to rapid spoilage but also to pathogenic infection therefore addition of chemical preservatives is a must in commercial fisheries. Natural preservatives are gaining an increasing attention due to the increased concerns about the possible side effects of chemical preservatives on consumers. Therefore, current study aimed to evaluate the positive potential effects of ethanolic extract of propolis on chemical, microbiological, and sensory quality parameters of market fillets of tilapia (*Orechromis niloticus*). The sample were treated with 0 (control), 0.5, 1, and 1.5% of ethanolic extract of propolis and stored at (4 ±1˚C). Then samples were tested for microbiological, chemical, and sensory characteristics after 0, 3, 6, 9 12, and15 of storage. Based on the obtained results, the addition of the propolis extract significantly extended the shelf-life of fillets up to 12 days compared to the control group that was completely spoiled after 6 days of treatment. The results suggest that using the ethanolic extract of propolis would be suitable natural preservative, which might enhance the chemical, microbiological, and sensory characteristics and storability of refrigerated fillets of tilapia fish.

**Effect of some food additives on refrigerated chicken**

**Alla Eldin M.A. Morshdy; Mohamed A.M. Hussien and Radwa, R.M. Elzwahery**

Department of Food Hygiene, Faculty of Veterinary Medicine Zagazig University

**Abstract:**

In this study the effect of two essential oils was test on refrigerated chicken meat so Seventy five broiler chickens were obtained from small scale poultry processing shops after slaughter (fifteen per a trial, five replicates were conducted). The samples immediately transported to the laboratory of the meat hygiene faculty of Veterinary Medicine Zagazig University, Egypt. Broiler chickens were divided into five batches and treated as the following control group, clove oil group, 0.5% (CLO 0.5%), clove oil group, 1% (CLO 1%), rosemary oil group, 0.5% (RO 0.5%), rosemary oil group, 1% (RO 1%) All the groups were sampled immediately after treatment (zero time) and at the 3rd, 6th, 9th and the 12th days. All groups were kept in fridge at 4±1° C. Then subjected to sensory and chemical analysis. The final score of the sensory evaluation at zero time was 4.82 ± 0.3, 4.77 ± 0.2, 4.75 ± 0.3, 4.77 ± 0.28 and 4.75 ± 0.29 for Control, CLO 0.5 %, CLO 1 %, RO 0.5% and RO 1 %, respectively. By the ninth and twelve day progressive decreases in all groups, especially the control group, The mean values of pH were 6.18 ± 0.06 and 5.65 ± 0.09, 6.11± 0.1 and 5.64 ± 0.08, 6.1± 0.08 and 5.65 ± 0.1, 6.12 ± 0.09 and 5.63 ± 0.08, 6.12 ± 0.1and 5.64 ± 0.1 for thigh and breast in control, CLO 0.5 %, CLO 1 %, RO 0.5% and RO 1 %, respectively at zero day. The mean values of total volatile basic nitrogen (TVB-N) at zero time were 9.27±0.2 and 6.7±0.18 for thigh and breast at zero time in all examined groups. The thiobarbituric acid (TBA) mean values were 0.23 ± 0.05 and 0.15 ± 0.04 mg MDA/kg in thigh and breast for all examined groups at zero time. And only exceeded the permissible limit at the end of the storage period in control group.

# Essential oils of cardamom as a natural preservative of retailed meat fillets

[1]Ebeed Saleh, [2]Alaa Eldin Morshdy,[3]Atef M.K. Nassar and [4]Rana El- Hadidy

[1]Food Hygiene and Control Department, Faculty of Veterinary Medicine, Damanhour University, Damanhour, El-Beheira, Egypt. [2]Food Hygiene and Control Department, Faculty of Veterinary Medicine, Zagazig University, Zagazig City, Sharkia, Egypt. [3]Plant Protection Department, Faculty of Agriculture, Damanhour University, Damanhour, El-Beheira, Egypt.

## Abstract

Meat is commonly marketed at refrigerated temperatures (2–5º C). The major concern for retailers and public health are microbiological quality and safety of refrigerated beef. Many undesirable changes occur during refrigeration due to microbial growth that lead to meat spoilage, quality reduction, and economic loss. Therefore, improving fresh meat shelf-life and increasing consumer safety by minimizing product contamination and delaying or inhibiting growth of spoilage organisms using safe preservatives is a pre-request. This study examined the effect of cardamom essential oils at concentrations of 0.0, 0.25, 0.5, and 1% on the microbiological, chemical, and sensory qualities of raw beef after storage at 0, 3, 6, 9, 12, and 15 days of treatment at 4°C. The results showed that addition of cardamom essential oil significantly delayed the proliferation of aerobic plate counts, staphylococcus, Enterobacteriaceae, psychrotrophic bacterial counts and extended the shelf-life of the product up to 12 days compared to the control group that was completely spoiled at the 6th day of storage. Therefore, cardamom extract could be utilized successfully to reduce the microbial growth, maintain the chemical quality and extend the shelf-life of beef that held under proper refrigeration.

# Effect of Marjoram (*Origanum marjorana*) on improving microbial safety and quality of poultry meat.

Ebeed Abd El Atty Saleh[1] ,Hossam Abdel Galil[2] and Hassan R. Morshedy[1]

[1] Food hygiene department, Faculty of Veterinary Medicine, Damanhour University.

[2] Food hygiene department, Faculty of Veterinary Medicine, Alexandria University.

**Abstract:**

Poultry meat is considered as one of the most popular food commodities around the world, and their consumption increased dramatically over the last two decades in many countries. Recently, shelf-life extension of poultry meat has become one of the main concerns in the industry. Marjoram is a great antioxidant, antibacterial, antifungal, and antiviral agent and used in a variety of common illnesses. A total of 100 random samples of poultry meat was collected from different localities at El-Behira markets. The prepared samples were divided into 4 groups; the 1st was untreated control, while the 2nd group was mixed with Marjoram essential oil (0.5%) for 15 minutes, 3rd group was mixed with Marjoram essential oil (1%) for 15 minutes, the 4th was mixed with Marjoram essential oil (3%) for 15 min. The control and treated poultry minced meat samples were labeled and packaged individually, then stored at 4±1○C inside the refrigerator. All groups were examined for total volatile basic nitrogen (TVN), thiobarbituric acid test (TBA)and microbiologically at (0, 3rd and 7th) day. The results revealed that Oregano essential oil treatments significantly reduced ($p < 0.05$) lipid oxidation, protein oxidation, and improved microbiological quality. However, Marjoram oil at (3%) showed the highest effect for all these parameters. Overall, Mrajoram essential oil at level between 0.5% -3% could be a good meat preservative that can be used as a natural preservative ingredient for longer periods without the need to use hazardous preservatives in food industry.

Key words: Thiobarbituric acid, Mrajoram, Poultry, total volatile basic nitrogen.

# Campylobacter in chicken meat: sources , detection and antibiotic resistance

Ebeed A. Saleh[1], Ahmed L. Abdel-mawgood[2] and Hassan M. Gebreel[1]

1 Food hygiene department, Faculty of Veterinary Medicine, Damanhour University.

2 Institute of Graduate Studies and Environmental Researc, Alexandria University.

Abstract:

Campylobacters, especially C. jejuni and C. coli, are the most common pathogens that can cause human bacterial gastroenteritis worldwide. They are the major cause of food-borne illnesses in the developed countries .Campylobacters are found in the intestinal tract of both domestic and wild animals as commensal bacteria. Campylobacters are also the leading cause of the bacterial diarrheal disease worldwide, especially in developed countries. Among all the Campylobacter species, C. jejuni and C. coli account for at least 95% of gastrointestinal infections in human. Other species, such as C. upsaliensis and C. lari, are also associated with other forms of campylobacteriosis. In addition, Campylobacters have very low infectious doses as low as few hundred cells .Campylobacter enteritis is not anew disease but in the 21st century, it presents serious challenges to poultry producers, food processors &food retailers. Campylobacter jejuni may enter the environment, including water supplies via feces contamination from infected birds or animals, and human consumption of contaminated food, water and milk etc. Therefore, in the industry, in order to detect C. jejuni contamination, an applicable detection method must have a sensitivity of 2 to 3 log CFU/ml. The rapid and accurate detection of Campylobacters from food sources, especially broiler meat is considered as a part of quality control program which is necessary for the maintenance of a safe food supply, the implementation of effective control measures in the primary production and as a tool in quantitative risk assessment studies it is necessary to have a sensitive detection method and in particular a quantitative result. Campylobacter detection and enumeration in foods by traditional culture methods is problematic owing to the fragility of this organism. This review will discuss sources, detection and antibiotic resistance of Campylobacter species worldwide.

**Keywords:** Campylobacter; food borne pathogens, poultry, antibiotic resistance.

# A review on Bacteriological Quality of Fish and Fish Products

**Abd-Elsalam E. Hafez, Rasha M. El Bayomi and Noha El baz**

Food Control Department, Faculty of Veterinary Medicine Zagazig University, El-Zeraa Str. 114, Zagazig 44519, Egypt.

**Abstract:**

Fish constitutes an essential nutrients source to humans owing to its protein of high quality, high content of unsaturated fatty acids and low carbohydrates contents. Fish quality is a major aspect in fish industry all over the world. The main objective of fish assessment is to avoid the ingestion of contaminated food to ensure the consumer safety. To assess the fish safety both sensory and bacteriological methods are used. Fish are subjected to numerous type microorganisms naturally, some of which has an effect on the shelf life of the product and the humans safety. Sea water can be a source of fish microbial contamination. The greatest human health risk occurs owning to the consumption of raw, inadequately cooked fish and fish products. The symptoms of fish food poisoning include diarrhea, abdominal cramps, nausea, vomiting, headache in addition to muscle and joint pain. This article reviews the permissible source for bacterial contamination in fish. Good manufacturing practices are required to minimize food poisoning risk associated with fish and fish products consumption. Hazard analysis of critical control points programs in fish and fish product industries should be applied to prevent reaching the dangerous foods to the consumers.

**Keywords:** Fish; bacterial contamination; Quality; source.

# Maintaining quality and extend shelf life of fresh chicken fillets by thymus vulgaris essential oil at chilling

Ebeed A. Saleh[1], Alaa Eldin Morshdy[2], Mohamed A. Hussein[2]

[1]Food Hygiene and Control Department, Faculty of Veterinary Medicine, Damanhour University, Damanhour, El-Beheira, Egypt. [2]Food Hygiene and Control Department, Faculty of Veterinary Medicine, Zagazig University, Zagazig City, Sharkia, Egypt.

**Abstract:**

Chicken meat are good source of animal protein of high biological value, which contains all the essential amino acids required for human nutrition, besides that they contain higher proportion of un saturated fatty acids and less cholesterol especially when skin is removed. Recently trend is to decrease synthetic additives that have been vastly used because of the growing concern among consumers about their serious effects on human health. A total of 125 samples of fresh poultry fillets of marketed poultry (5 of each) of weighting 2kg ±500g were randomly collected from local markets in Damanhour city, El-Beheira province, Egypt. The present study evaluated the effects of thyme essential oil on 2 weeks storage of fresh chicken fillets meat at 4˚C, treatment with thyme-limited deterioration of sarcoplasmic proteins helping to preserve meat even after 2weeks of storage. Thyme essential oil decreased the natural microflora present in the meat, Total microbial content decreased down to 50% in comparison to the control samples. Thyme essential oil effectively inhibited the growth of total Enterobacteriaceae count, total aerobic bacterial count, and total staphylococcal count. It could be concluded that thyme essential oil effectively reduced deteriorative process in chicken meat & extend the shelf life of this fresh product by 6 days. The essential oil of thyme can protect the chicken meat from decomposition during storage time.

# Bacteriological Quality of Rabbit meat

**Elsaid A. Eldaly, Rasha M. El Bayomi, Abdallah F. A. Mahmoud and Rania H. Mohamed**

Food Control Department, Faculty of Veterinary Medicine Zagazig University, El-Zeraa Str. 114, Zagazig 44519, Egypt.

**Abstract**:

Nowadays, consumers interest with a healthy lifestyle are increased, e.g. energy and nutritional of foods, which are rich in protein and low in cholesterol and lipid contents. From the nutritional point of view, rabbit meat is easily digested and flavorful, with high nutritional and dietetic values as this meat contains proteins of high nutritional value, unsaturated fatty acids, phosphorus, magnesium and potassium, in addition it contains low concentrations of cholesterol, fat, and sodium. Therefore, rabbit meat is better digested as compared to other kinds of meat and is recommended for consumption for persons with cardiovascular illnesses. The studies concerned with the quality of rabbit meat have focused mainly on biochemical and bacteriological examination of rabbit meat. Rabbit has the potential to carry food-poisoning organisms derived from different sources (skin, gut contents, feces, abattoir environment, workers, cutting and packaging processes, and handling at the retail level). The bacterial contaminants can grow or survive during food processing and storage. This article will attempt to outline the excellent nutritional properties of rabbit meat, reviews the permissible source for bacterial contamination in rabbit and offer an overview of the studies performed on the strategies adopted to improve the quality of rabbit meat by using essential oils as potential antimicrobial agents.

# Antimicrobial effect of Laurel leaves extract on *Staphylococcus aureus* and *Pseudomonas Fluorescens* in Oreochromis Niloticus fillets

**Ebeed A. Saleh, Ibrahim I. Al-Hawary and Mayada M. El-Najar**

Food control Department, Faculty of Veterinary Medicine, Damanhour University
College of Aquatic and Fisheries Science، Professor of Fish Processing and Boitechnology، Kafer El Sheikh University

## Abstract

Laurus nobilis L. commonly known as bay belonging to the family Lauraceae is one of the most useful essential oil and is an industrial plant used in foods as a spice in Mediterranean cookery, drugs and cosmetics. The recent study is to evaluate the antibacterial activity of laurel essential oil against tow bacterial strains "staphylococcus aureus as food poisoning and pseudomonas fluorescence as food spoilage bacteria " by using different concentration of oil and to determine its effect on Oreochromis Niloticus fillets. The antimicrobial activity of the essential oils of laurel plant spice was tested at three concentrations (0.5% , 1%, 1.5%) against both food poisoning and food spoilage microorganisms (*Staphylococcus aureus*, *pseudomonas fluorescence*) in *Oreochromis Niloticus* fillets with different storage time at chilling temperature (-4°C). The results showed that the essential oil tested varied in its antimicrobial activity as follows, the highest value of *Staph aureus* and *P. flouresence* reduction was detected with 1.5% concentration of laurel oil it was 99.97% and 94.5% respectively, while the lowest value was obtained with 0.5% concentration. It also, showed that the more time increased the reduction increased. Thus, the laurel essential oil exhibited strong antibacterial activity against tested foodborne and spoilage bacteria. Based on the above, that bay laurel EO have potential as natural alternatives to synthetic food preservatives, in order to enhance food safety and increase food shelf life.

# Effect of Carica Papaya seeds, seeds and leaves extract on *Staphylococcus aureus* and *Escherichia coli* in minced meat and on meat quality.

Ebeed Abd Elatty Saleh [1], kadry Mohamed sadek [2], Heba F. Elaarag [3]

[1] Prof. of meat hygiene, technology and food safety Faculty of Veterinary Medicine, Damanhour University. [2] Assistant prof. of Biochemistry safety Faculty of Veterinary Medicine Damanhur University. [3] Bachelor of veterinary medicine, Kafr El Sheikh University

## Abstract

Meat is considered an excellent source of nutrient for human through its contents of protein, mineral and vitamins. In addition, it considered a suitable media for multiplication of spoilage microorganisms and food borne pathogens. Papaya contains powerful antioxidant as vitamin C, E and flavonoids; the B vitamins, folate and pantothenic acid. Papaya and its extracts have antibacterial activity against *Staphylococcus aureus, Pseudomonas, E-coli, Proteus mirabilis, Klebsiella pneumonia and Salmonella typhi.* The aim of this work was to replace the use of chemical preservatives by a natural preservative. We studied the possibility of the use of papaya seeds, seeds and leaves extract in preservation of raw minced meat through evaluation of antibacterial and antioxidant capacities. The work was done by dividing meat into 4 groups; one as a control group and the other three groups each divided into three subgroups to test the effect of papaya seeds, papaya seeds and leaves extracts with (1%, 2% and 3%). Each concentration was added to the meat groups and preserved at 3:5$^{o}$C. A sample from each group was taken every day from day zero till signs of spoilage were appeared. We also compared their effect on *Staph aureus* and *E. coli* and on meat quality through measuring total antioxidant capacity and lipid peroxidation. The results revealed that papaya leaves extract (3%) gave the best result and the longest period of preservation with lowest bacterial count followed by seeds extract at concentration 3%. Dried powdered papaya seeds without extraction nearly had no effect. In conclusion, preservation of meat with leaves extract 3% is preferred than other tested methods of preservation.

# *Escherichia coli* and *Staphylococcus aureus* as foodborne pathogens in meat products: A review

Alaa Shaban, Ferdows Mohamed, Abdallah Fikry A. Mahmoud, Adel I. El-Atabany

Food Control Department, Faculty of Veterinary Medicine, Zagazig University.

**Abstract:**

Foodborne disease are a growing public health problem all over the world. *E. coli* one of the major foodborne bacterial contaminant of meat and meat products. These infections may occur through consumption of contaminated food such as raw and undercooked meat products as minced meat, luncheon, and sausage, fecal contamination of water and food and cross contamination lead to infection. *E. coli* strains are among the most common etiological agents diarrhea and based on their specific virulence factors and phenotypic traits are divided into two major categories: the enteric pathogens and the extra-intestinal pathogens. Moreover, Staphylococcal food poisoning is one of the most common food-borne diseases and results from the ingestion of staphylococcal enterotoxins preformed in food by enterotoxigenic strains of coagulase-positive Staphylococcus mainly S. aureus. The presence of these pathogens in food is a consequence of inadequate hygienic handling and processing, posing a potential risk to public health. Therefore, the detection of *E. coli* and *Staph aureus* occurred through traditional culture and biochemical method to determine their presence is quite important to inhibit the growth of microorganisms and protect consumer from foodborne illness. This review aims to provide an overview of *E. coli* and *Staph aureus* in meat products, their prevalence and their public health implications.

**Keywords***:* Foodborne pathogens, *Escherichia coli*, *Staph aureus*, Prevalence, Public health significance.