SOME CHEMICAL RESIDUES IN SMOKED HERRING

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Abstract

Levels of twenty-two organochlorine pesticides (OCPs) and five heavy metals (As, Cd, Pb, Hg & Al) were assessed in forty smoked herring (*Clupea harengus*) fish samples collected weekly between October 2015 and May 2016 from Zagazig city markets. Samples were examined for their chemical residual levels of DDT compounds (DDTs), hexachlorocyclohexane isomers (HCHs), lindane (c-HCH), Aldrin, dieldrin, endrin, hexachlorobenzene (HCB), toxaphene, and chlordane compounds. Endrine, OP-DDE and PP-DDT were not existed in any fish samples. The average range of OCP levels between the herring samples was 2.48–264.00 ng g^{-1} (lipid weight), 0.34–35.64 (wet weight). Total-Y-HCH and total-HCB, were the most predominant contaminants in the fish samples (100%) while, Aldrin, trans-chlordane, OP-DDD & PP-DDD were the lowest (10%). As general, the order of contamination pattern of OCPs was HCHs, HCB > Heptachlor > DDTs. There was no relation between content of lipid in herring fish samples and the contaminant levels. The contents of the organochlorine residues and heavy metals observed in all of the analyzed contaminated samples were less than the maximal permissible limits fixed by different local and international organizations for fish set by FDA. EDIs (Estimated daily intakes) through dietary consumption of smoked herring which were less than the recommended acceptable daily intakes (ADIs) set by FAO/WHO.

Keywords: Organochlorine – Pesticide – Heavy metals – Residues – Herring.

QUALITY ASSESSMENT OF IMPORTED FROZEN POULTRY

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Abstract

This study was carried out to investigate the quality assessment of imported frozen poultry meat through organoleptic, physicochemical and bacteriological parameters. Ninety random samples of imported frozen poultry meat classified into breast and thigh samples (45 of each) were collected from different supermarkets at El-Sharkia Governorate. The results showed normal organoleptic attributes except few samples have a little changes, while physicochemical parameters revealed that the mean values of thawing loss, water holding capacity (WHC) and cooking loss (%) of imported frozen chicken breast and thigh samples were 5.83 ± 0.46 % and 5.93 ± 1.44 %, 48.37± 2.21 % and 50.57 ± 1.48 % and 31.33 ± 0.46 % and 34.03 ± 1.01 %, respectively. Meanwhile, the pH, TVB/N and TBA mean values were 6.29 ± 0.21 and 6.64 ± 0.14, 11.2 ± 3.05 and 9.8 ± 0.7 mg/100gm and 0.47 ± 0.04 and 0.58 ± 0.06 mg MDA/g for imported frozen breast and thigh, respectively. The aerobic plate count (APC), total psychrotrophic count, total Enterobacteriaceae count, MPN of coliforms and total Staphylococcal count were 6.44 ± 0.15 and 6.61 ± 0.15, 5.93 ± 0.19 and 6.27± 0.17, 5.53 ± 0.16 and 5.58 ± 0.15, 4.73± 0.14 and 4.76 ± 0.17 and 3.20 ± 0.15 and 3.23 ± 0.15 $\log_{10}$ cfu /g for breast and thigh muscle, respectively.

Keywords: Quality assessment – Imported frozen poultry – Thawing loss –Cooking loss – Psychrotrophic – Enterobacteriaceae – MPN – *Staph.aureus*.

QUALITY ASSURRANCE OF SOME FISH PRODUCTS

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Abstract

A total of 200 samples of processed fish products Tuna (50), (smoked Herring fishes (50), salted *Mugil cephalus* (Fessiekh) (50) and salted Sardine (50) were randomly collected from different market retailers and from different markets in Al-Bohiera province. The samples were transferred under aseptic conditions as rapidly and directly as possible to the laboratory and directly are subjected to chemical (determination of TVN-base, TBA, TMA, FFA and NaCl content) and bacteriological examinations (Isolation and identification of Escherichia coli, Salmonellae, Bacillus cereus, Vibrio parahaemolyticus, Clostridium perfringens and Clostridium Botulinum). The result of chemical examination revealed that examined samples of Tuna, smoked fish, Fessiekh and salted Sardine appeared to be exceeded the normal level of total volatile nitrogen (mg%), TBA (mg/kg), TMA (trimethylamine) and FFA free fatty acids (mg%) in some samples. The bacteriological findings revealed that E. coli was isolated with incidences of 4,18,24 and 20 % in Tuna, Smoked Herring, Fessiekh and salted Sardine, respectively. The highest incidence was in Fessiekh, Salmonella organisms was isolated from Smoked Herring only and it was only one case at 2%., Bacillus cereus was isolated from Tuna, smoked Herring fish, Fessiekh and salted Sardine with incidences of 4%, 24%, 4% and 16%, respectively, Vibrio parahaemolyticus was isolated from smoked Tuna, Herring fish, Fessiekh and salted Sardine with incidences of 8, 62, 36 and 32%, respectively, the Clostridium perfringens was isolated from Tuna, smoked Herrings, Fessiekh and salted Sardine with incidences of 8, 18, 28 and 62% respectively and Clostridium Botulinum could not be detected at any of examined samples. Further serological examinations were done to determine the E. coli serotypes. In addition, experimental laboratory animal (neutralization and dermonecrotic tests) confirmed the results of isolated Cl. Perfringens of the examined samples and PCR assay for determination of the type of toxin through agarose gel electrophoresis. The results showed the detection of Alpha toxin in the examined samples with a DNA sequences of PCR fragment.

Chemical Quality of Frozen White *Pangasius hypophthalmus* Fillets "Basa Fillets"

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Abstract

Pangasius hypophthalmus, Basa fillets, is a fresh water fish, which mainly processed into skinless and boneless fillets intended for exportation to many countries including Egypt. Basa fillets may deteriorate during transportation and storage leading to alteration of flavor and texture, offensive odor and discoloration. Therefore, a total of 40 random samples of imported frozen *Pangasius hypophthalmus* fillet were collected from PortSaid governorate different markets. The mean values for TVB-N, TBA, and histamine was 26.03 ±0.886 mg/100g, 3.75 ±0.117 mg/kg and 12.31 ±1.108 mg/100g respectively. The mean concentration levels of cadmium lead, zinc and copper was 0.30 ±0.056, 0.61 ±0.151, 12.71 ±0.703 and 3.03 ±0.152 mg/Kg wet wt., respectively. It could be concluded that the high concentration levels of total volatile nitrogen, thiobarbituric acid and histamine in some samples of *P. hypophthalmus* fillet exceeded the Egyptian permissible limits render the fish unfit for human consumption. More suggestions for improvement the quality and safety of Basa fillets were given.

QUALITY ASSESSMENT OF IMPORTED FROZEN MEAT

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Abstract:

A total of 80 Brazilian and Indian imported frozen meat samples (40 of each) were randomly collected from supermarkets and shops at Sharkia Governorate. All collected samples were subjected to organoleptic, Physicochemical and bacteriological examinations. The results showed that 100% of the examined samples were normal in color, odor, consistency and taste. The cooking loss % was with mean values of 30.99 ± 3.36 and 40.61 ± 1.41, water holding capacity was with mean values of 67 ± 1 and 60.66 ± 3.84, thawing loss % was with means of 7.62 ± 2.26 and 11.44 ± 2.96, pH values were with means of 6.26 ± 0.23 and 5.89 ± 0.03, TVN was with mean values of 8.3 ± 1.15 and 10.5 ± 1.21 mg% and TBA value was with means of 0.71 ± 0.1and 0.68 ± 0.02 mg malonaldehyde/kg) for Brazilian and Indian meat samples, respectively. The results of bacteriological examination revealed that the mean values of aerobic plate count was 6.43 ± 0.13 and 6.18 ± 0.1 $\log_{10}$cfu/g, the mean psychrotrophic counts was 5.4 ± 0.1 and 5.8 ± 0.09 $\log_{10}$cfu/g, Enterobacteriaceae counts were 5 ± 0.14 and 5.07 ± 0.1 $\log_{10}$cfu/g, most propable number of coliforms were 4.68 ± 0.17 and 4.54 ± 0.15 $\log_{10}$cfu/g and *Staph. aureus* counts were with means of 2.81 ± 0.17 and 3.03 ± 0.14 $\log_{10}$cfu/g, for the examined Brazilian and Indian meat samples, respectively.

Keywords: Imported frozen meat – Organoleptic – Physicochemical – Microbiological.

Physical and Chemical Quality of Frozen and Salted Sardine at Ismailia Markets

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Abstract

Sardine, Sardina pilchardus is one of the most popular fish highly consumed on a large scale in some occasions and festivals at Egypt. Therefore, this study was conducted for evaluation of physical and chemical quality of frozen and salted sardine fish at Ismailia markets. A total of 60 frozen and salted sardine samples (30 of each) were purchased from various commercial fish markets at Ismailia city for a determination of moisture, pH, sodium chloride, total volatile basic nitrogenous compounds and histamine content. The mean values of moisture, sodium chloride, total volatile basic nitrogenous compounds and histamine in frozen sardines was 63.40 ±2.99, 6.61 ±0.1, 0.05 ±0.01, 24.35 ±0.93 mg/100g and 8.25 ±1.01 mg/100g respectively. While, were 13.6 ±1.31, 6.75 ±0.2, 7.6 ±0.1, 29.95 ±1.59 mg/100g and 15.93 ±2.07mg/100g in salted sardine respectively. 7 (23.3%) out of 30 and 4 (13.3%) out of 30 samples of frozen and salted sardines were unfit for human consumption due to they exceeded the standard limit of pH values which established by the Egyptian standard. Meanwhile, 6 (20%) out of 30 samples of salted sardines were unwholesome due to they exceeded the standard limit of salt level which established by the Egyptian standard. On the other hand, 3 (10%) out of 30 and 18 (60%) out of 30 samples of frozen and salted sardines were unfit for human consumption due to they exceeded the standard limit of total volatile basic nitrogenous compounds values. In addition, 9 (30%) out of 30 and 12 (40%) out of 30 samples of frozen and salted sardines were unwholesome due to they exceeded the standard level of histamine content. Quality assessment and significance of histamine on public health in frozen and salted sardine were also discussed.

Nutritive Values and Bacteriological Quality of Different Grads of Beef Burger

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Abstract

Beef burgers are one of the major processed meat products available in the market. Due to its unique biological and chemical nature, meat undergoes progressive damage from the time of slaughter until consumption. Therefore, a total of 60 frozen beef burger samples from different grades based on price [high – medium – low] were randomly collected from different markets at Port Said city. All samples were chemically and bacteriological evaluated. The obtained results indicated that the mean values of moisture, protein, fat and ash for high price beef burger they were 65.45, 15.95, 12.40 and 1.07, respectively, for medium price beef burger was 61.85, 12.36, 9.67 and 2.86, respectively, for low price beef burger they were 60.24, 14.06, 12.43 and 2.5, respectively. The mean value of total psychrophilic counts and total Enterobacteriaceae counts for high, medium, low price beef burger samples was 4.5×10^5, 1.4×10^5 and 3.6×10^6 and 6.9×10^2, 5.7×10^2 and 1.3×10^3, respectively. The percent of detected *Escherichia coli* and *Salmonella* for high, medium, low price beef burger samples respectively were 0%, 100% and 56% and 0%, 20% and– 80%.

Maintenance behavior and carcass traits of two breeds of male rabbits in a response to Androgenic Steroid

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Abstract

The goal of this study was assessing the changes in behavior and carcass traits in two breeds of male rabbits in response to boldenone undecylenate "BOL", as androgenic steroids. Twenty apparently healthy adult male rabbits from New Zealand (10 bucks) and others from California breed were housed separately in metal cages under the same environmental condition. Control group includes bucks that were injected intramuscularly with soybean oil, while, treated group includes bucks that received 2 intramuscular injections of boldenone with 3 week intervals. There were significant differences in the most of maintenance behaviors of bucks in main factors (treatment, breed and its interaction), while the eliminative behavior did not significantly affected by these main factors. The percentages of dressing, liver and spleen were higher in treating bucks with BOL than other control, while treated group was the lowest in % testes. Moreover, all percentages of carcass traits were higher in California breed than New Zealand breed. In a conclusion, the treatment with BOL in the different breeds of male rabbits has a significant effect in behaviors with a changing in the most of the percentages of carcass traits.

Key words: Rabbit – Breed – Androgenic steroid – Behavior – Carcass

PREVALENCE OF SOME FOOD BORNE PATHOGENS IN SOME MEAT PRODUCTS

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Abstract:

A total of 90 meat product sample (minced meat, sausage and luncheon) 30 for each were randomly collected from different markets in Zagazig city for evaluation of some food borne pathogens. The obtained results revealed that the mean values of total aerobic plate count was 5.3±3.9, 4.1±3.1 and 4.5±3.9 log $_{10}$ CFU/g for minced meat, sausage and luncheon respectively and *staphylococcus aureus* count in positive samples were 3.7±2.7, 3.3±2.6, 3.5+2.0 log $_{10}$ CFU/g with an incidence ratio 36.6%, 40% and 10% in minced meat, sausage and luncheon. It's cleared that the incidence ratio of *Salmonella*, *E. coli* and *Listeria monocytogenes* was 13.3% ,16.6% and 3.3% in minced meat ; 10%, 23.3% and 3.3% in sausage meanwhile Salmonella failed detection from all luncheon samples under inspection with a contamination ratio of 13.3% by *E.coli*. It could be concluded that the meat products were exposed to inadequate hygienic measures during preparation represented as inadequate keeping and preparation temperature and cross contamination from different sources by food-borne pathogens. In addition, some suggestions and recommendations were given for improving the sanitary condition to ensure its safety for human consumption.

IMPROVEMENT SHELF LIFE OF BROILER FILLETS PRESERVED BY CHILLING

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ABSTRACT

Broiler fillets occupy a unique place in human diet due to its specific nutritional and digestible value, healthy food which is low in fat and cholesterol compared to other meats. The objective of this study was to increase shelf life of broiler fillet. A total of 9 kg broiler fillets samples were purchased immediately after slaughtering from a local commercial source in Sharkia Governorate, Egypt. In the laboratory, the fresh poultry fillets samples (1800 grams of each) were divided into six groups (each contain 300 grams).The first, second, third, fourth, fifth and sixth group were treated by dipping of broiler fillets in a sterile distilled water (as control), NaL 2%, TSP 12%, EDTA 2%, (mixture of NaL 2% and TSP 12%) and (mixture of NaL 2%, TSP 12% and EDTA 2%) for 10 minutes. The six groups were subjected to organoleptic, chemical (pH) and bacteriological examinations.The results obtained showed that normal shelf life of broiler fillets (control) at 4±0.5°C was about 5 days. NaL 2% alone or TSP 12% alone or EDTA 2% alone extended shelf life of broiler fillets to 7 days, and the combination of (NaL 2% and TSP 12%) can extend it up to 8 days, the maximum storage time in this study was 9 days for the combination of(NaL 2% , TSP 12% and EDTA 2%) .

INCIDENCE OF FOOD POISONING BACTERIA IN MARKETED CHICKEN

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Abstract

A total of 90 fresh broiler carcasses represented by breast, fillet and thigh muscles (30 of each) were collected randomly from different localities of chicken slaughter houses at Sharkia Governorate, Egypt. The collected samples were subjected to bacteriological examinations with application of trials for improving its sanitary status. The incidence ratio of *Staph. aureus* were 23.3%, 16.6 % and 33.3% in the breast, fillet and thigh muscles respectively, with a total percentage of 24.4 %.The obtained results revealed that (56.6%) and (26.6%) of the examined broiler breast and thigh muscle samples respectively were positive for the occurrence of *E. coli*. *E. coli* was serologically identified as EPEC (O_{78}) *and (O153: H2)* were isolated from 5.88%, 5.88%, 17.6 % and 23.5 % of the examined broiler chicken breast samples respectively. EHEC (O91 *H21*) and (O*26: H11)* were isolated from 17.6 % and 5.88 % of the examined broiler chicken breast samples respectively. Meanwhile the mentioned strains were isolated from thigh muscle samples with an incidence of 12.5%. Salmonella spp. was isolated from 5.55 % of the examined total broiler samples. Salmonella spp. was isolated from 3.33%, 3.33% and 10.0% in the examined breast, fillet and thigh muscle samples, respectively with a total percentage of 5.55% from the tested broiler samples. The isolated Salmonella was serologically identified as Salmonella Tamale in the examined breast muscles with the incidence of 20%. *Salmonella inganda* in the examined fillet muscles is with the incidence of 20% *Salmonella typhimurium* (20%), *Salmonella enteritidis* (20%), and *Salmonella kentuckey* (20%) in the examined broiler thigh muscles. Trials to improve the sanitary status of broiler meat by using some organic acids were conducted. Lactic acid and acetic acid were used for reducing bacteriological populations of some food poisoning bacteria (*Staph.aureus, E.coli and Salmonella*); The reduction count of dipped chicken fillet in acetic acid 1%for 30 minutes is more effective than lactic acid 1% for 30 minutes. So recommend with using these Acids in house as these are available.

Hygienic and Economic Impact Assessment of Illegal Red Meat at Ismailia Markets, Egypt

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Abstract

Ismailia Abattoir is the main legal facility in Ismailia, Egypt available for slaughtering the six main food animals to supply safe meat for human consumption. During the study, a survey was carried out in Ismailia local markets during the period of January 2014 to December 2015 in order to assess hygienic and economic impacts of illegal meat at Ismailia markets and their seasonal distribution. Camel were excluded because of no meat condemnations had been reported. In 2014, a total of 961 kg of illegal slaughtered meat was condemned. Cow meat represented 81.06 % of the total condemned meat, while there were no condemnations for mutton. Summer season had the largest percent of condemnations (47.14 %) while spring season was the least (8.13 %). In 2015, about 1.119 ton illegal meat was condemned with the highest rate of condemnations found during spring and summer seasons (35.57 and 34.58 %, respectively). The total direct financial losses due to illegal meat condemnations during the study period were estimated to be 160331.11 EGP. A total of 794 kg and 1982 kg of frozen and minced meat were condemned; respectively during the study period with direct financial losses of 188305.78 EGP. Control of illegal meat trading and cost losses requires increasing inspection campaigns by monitoring authorities and also increasing awareness about safe meat and hazards of consuming illegal meat. Reasons for outside the abattoir slaughtering should be investigated.

Key words: Meat condemnation – Frozen meat – Minced meat – Economic losses – Abattoir

Chemical and Bacteriological Quality of Imported Breaded and Battered Fish in Egyptian Markets

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Abstract

Breaded and battered fish have become newly introduced to the Egyptian markets and include quite a large variety of products. Therefore, a total of 40 random samples of frozen half cooked battered and breaded fish products were collected from Egyptian markets and subjected to a chemical and bacteriological evaluation. The mean value of trimethylamine for breaded and battered fish samples was 2.8 mg/100g fish, while the mean value of thiobarbituric acid reactive substances was 1.2 mg/kg fish respectively. The positive numbers of breaded and battered fish samples for aerobic bacterial, *Staphylococcal spices*, *Enterobacteriaceae* group, *Escherichia coli* and salmonella, were 40 (100%), 40 (100%), 40 (100%), 5 (12.5%), 0 (0%) respectively. The mean value of total bacterial counts, total Enterobacteriaceae counts and total staphylococcal counts in breaded and battered fish was $0.2x10^2$, $1.69x10^2$ and $2.8x10^2$ CFU/g. Contamination of breaded and battered fish may be attributed to unsatisfactory hygienic measures in handling and processing of fish. The suspected foodborne illness from breaded and battered fish products can be prevented by destroying the bacteria using proper cooking and avoiding post-cooking contamination from food handlers. Additional suggestions for improving the quality and shelf-life of breaded and battered fish were also given.

Prevalence of Some Enteric Pathogens in Farms' Fish Retailed in Alexandria Markets

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ABSTRACT:

Fresh water fish played a significant role in the human food with an observed increase in the consumption of fish. Unfortunately, the vast majority of outbreaks of food related illness were mainly due to pathogenic microorganisms, rather than to chemical or physical contaminants as they were generally undetectable by the unaided human senses and they were capable of rapid growth under favorable storage conditions. Thus, it was necessary to study the prevalence of pathogens in fish to ensure safety for human consumption. A grand total of 100 samples of farms' fish including; Nile Tilapia (*Oreochromis niloticus*), Mullet (*Mugil cephalus*), cat fish (*Clarias lazera*) and silver carp (*Hypophthalmichthys molitrix*), (25 of each) were randomly collected from different markets in Alexandria Province. Samples were subjected to bacteriological examination for isolation and identification of some enteric pathogens threatening human health. The obtained results revealed that Enteropathogenic *E. coli* was isolated at the percentage of 40, 28, 48 and 32% of the investigated fish species, respectively. Further serological identification clarified the presence of serotypes; O_{86}:K_{61} (EPEC), O_{111}:K_{58}, O_{26}:K_{60} (EHEC), O_{124}:K_{72} (EIEC) and O_{128}:K_{67} (ETEC) with various rates. Also, *Salmonella* species were recovered at the percentage of 12, 16, 32 and 8% from the examined fish species, respectively with an identification of *S. Enteritidis, S. Typhimurium* and *S. Haifa* serotypes with different rates. In addition, *Yersinia enterocolitica* was detected in 8, 12, 16 and 8% of the examined samples, respectively. Finally, *Vibrio parahaemolyticus* were isolated at the percentage of 24, 24, 36 and 28% of the examined samples, respectively. According to the recorded results, it was clear that cat fish samples were highly contaminated by the investigated pathogens that should ring the hazard's bells about consuming such type of fish and environmental conditions where they were raised in.

Key words: Enteric Pathogens – Fresh Water Fish.

Prevalence Of Ochratoxin Residues In Small And Large Scale Produced Hard Cheese : Effect Of Radiation

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Abstract

Thirty random samples of small and large scale romy cheese, (15 each) were collected from different retail stores and supermarkets 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 small and large scale romy cheese samples were contaminated with ochratoxin A by a percentage of 100%. The obtained results revealed the presence of ochratoxin A with mean values of 2.14 ± 0.31 and 2.05 ± 0.26 ppb in small and large scale romy cheese samples respectively. Concerning small scale romy cheese samples, 7 (46.7%) samples out of examined samples were below 2 ppb while 8 (53.3%) samples were between 2-5 ppb. In case of large scale romy cheese samples, 8 (53.3%) samples out of examined samples were below 2 ppb while 7 (46.7%) samples were between 2-5 ppb. All examined small and large scale romy cheese samples were exceeding the permissible limits, according to Egyptian standards (2005) and European commission limits (2006) (Permissible Limit Nil), while according to limit established by JECFA (Joint FAO/WHO Expert Committee on Food Additives, 2001), all samples were below the permissible limit (10 ng/g). Thirty romy cheese samples exposed to Ultra Violet radiation (6 & 12 hrs) then compared with same samples not exposed to radiation, the mean values was 1.18 ± 0.12 and 2.38 ± 0.48 respectively. In case of samples radiated for 6 hrs and other samples radiated for 12 hrs, the mean value was 1.30 ± 0.20 and 1.07 ± 0.14 respectively. The presence of ochratoxin A in the examined romy cheese samples in detectable limits considered as risk factor in dairy production. Consequently, more restriction and preventive measures should be taken in milk herds, milk production and dairy factories in respect to quality control, sanitation and health care.

Keywords: Romy cheese – OTA – Mycotoxins – Radiation – Small scale – Large scale.

Application of bacteriophage to control *Staph. aureus* contamination in chicken meat

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Abstract:

Bacteriophages were 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 *Staph.aureus*. The count of *Staph.aureus* in artificially inoculated chicken fillet after exposure time 30 minutes to different concentration of bacteriophage was 6.54±0.03, 6.26±0.1, 6.23±0.18 and 6.17±0.09 log $_{10}$ cfu/g in control, 10^3, 10^6 and 10^9 pfu/ml of bacteriophage, respectively. The achieved reduction counts and percentages was 0.28(47%), 0.3(50%) and 0.36(58.8%), respectively. The count of *Staph.aureus* in artificially inoculated chicken fillet after exposure time 60 minutes to different concentration of bacteriophage was 6.54±0.03, 6.2±0.04, 6.1±0.06 and 5.26±0.11 log $_{10}$cfu/g, respectively in control, 10^3, 10^6 and 10^9 pfu/ml of bacteriophage, respectively. The achieved reduction counts and percentages was 0.34(55.88%), 0.44(64.7%) and 1.28 (94.7%), respectively of concentration of phage10^3, 10^6 and 10^9 pfu/ml. The count of *Staph.aureus* in artificially inoculated chicken fillet after exposure time 120 minutes to different concentration of bacteriophage were 6.54±0.03, 6.13±0.03, 6.01±0.05 and 5.04±0.07 log $_{10}$ cfu/g, respectively in control, 10^3, 10^6 and 10^9 pfu/ml of bacteriophage, respectively. The achieved reduction counts and percentages were 0.41(61.76%), 0.53(70%) and 1.5 (96.79%), respectively of concentration of phage 10^3, 10^6 and 10^9 pfu/ml. The results referred that the bacteriophage had lytic effect on artificially inoculated *Staph.aureus* in chicken fillet.

Key words: Bacteriophage– Sewage samples– *Staphylococcus aureus*– Electron microscope.

Isolation of Some Food Poisoning Microorganisms from Raw Chicken Products with Special Reference to Molecular Detection of *Salmonellae*

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ABSTRACT:

This study aimed to determine the role of raw chicken products in transmission of some enteric bacteria including; Enteropathogenic *Escherichia coli, Salmonellae* and *Campylobacter jejuni;* major foodborne pathogens to consumers inhabiting Alexandria, Egypt. A total of 100 random samples of raw chicken products represented by fillet, giblets, thigh and burger (25 of each) were gathered randomly from poultry shops and supermarkets in Alexandria Province for a bacteriological investigation. The results showed that the incidence of Enteropathogenic *E. coli* in fillet, giblets, thigh and burger was 76, 84, 64 and 80%, respectively and the serological identification revealed the presence of serotypes; O_{111}: k_{58} (EHEC), O_{124}: K_{72} (EIEC), O_{26}: K_{60} (EHEC), O_{128}: K_{67} (ETEC), O_{86}: K_{61} (EPEC) and O_{157}: H_7 (EHEC) while the incidence of *Salmonellae* was 16, 8, 12 and 16% in the examined samples, respectively with identification of *S. Enteritidis*, *S. Typhimurium* and *S. Dublin.* In addition, *Campylobacter jejuni* was isolated at the rate of 24, 16, 20 and 12%, respectively from the examined samples. Finally, a molecular study on the obtained isolates of *Salmonellae* was carried out. Based on the obtained results in the current study, it was clear that raw chicken products were highly contaminated with investigated bacteria that may be traced back to cross contamination during slaughtering, evisceration, transportation, handling and storage with absence of awareness about different sources of contamination and measures of personal hygiene of workers. At the end, the public health hazard and the recommended measures to lower of isolated bacteria in raw chicken products were discussed.

Keywords: Enteric – Bacteria – Raw – Chicken – Products

Studies on Some Pathological Conditions Observed in Sheep Carcasses at Dammam abattoir, Saudi Arabia

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ABSTRACT

A 2-years retrospective study was performed to calculate the prevalence of major and minor causes of carcass and organ condemnation in slaughtered sheep at Dammam abattoir, eastern Saudi Arabia. A total of 209,554 abattoir records of slaughtered sheep from January 2013 to December 2014 were analyzed. Pneumonia (17.76 %), hydatid cyst (2.83 %), abscess (2.78 %), ovine cysticercosis (2.08 %), liver cirrhosis (1.53 %), and fascioliasis (1.27 %) were the most prevalent conditions associated with partial condemnation during postmortem inspection. Additionally, cysticercosis (0.17 %), jaundice (0.08 %), recent injection (0.08 %), feverish carcass (0.05 %), ill bleeding (0.04 %), and emaciation (0.04 %) were the major pathological conditions associated with total condemnation. Hydatidosis and abscess were more prevalent in liver compared to lung. Significant annual and seasonal variations in the prevalence of conditions causing organ condemnation were observed. Hydatidosis, fascioliasis, cirrhosis, and abscess showed a decline in prevalence in 2014 compared to 2013. Pneumonia and hydatidosis were more prevalent during winter-spring compared to summer-fall period. Fascioliasis, cirrhosis, and cysticercosis showed a lower prevalence in summer compared to other seasons. In a conclusion, this study revealed that cysticercosis, jaundice and recent injection were the major causes for condemnation and associated economic losses at Dammam abattoir, eastern Saudi Arabia.

***Keywords*:** Sheep – Carcasses – abattoir – Condemnation – Saudi Arabia.

Occurrence and Characterization of Enterohaemorrhagic *E. coli* in raw milk and some dairy products

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Abstract

Seventy five random samples (25 each of raw milk, kariesh cheese and damietta cheese) were collected from different markets and dairy shops in Sharkia governorate, Egypt and examined for their bacteriological quality. *E. coli* could be isolated from 51(68%) samples, 20 raw milk, 25 kariesh cheese and 6 damietta cheese with percentages of 80, 100 and 24%, respectively. Serotyping of isolated *E. coli* yielded strains of EHEC (O26 and O111), strains of ETEC (O125 and O128), strains of EPEC (O1 and O55) and untypeable strains with varying percentages. All samples were negative for *E. coli* O157:H7. In the PCR screening of 8 EHEC strains for the presence of the *stx* genes, *eaeA* gene and *iss* gene, all strains were negative for *stx* genes, while for *eaeA* gene 4 strains were positive by a percentage of 50% and all strains were positive for *iss* gene by a percentage of 100%. The public health significance of isolated EHEC strains and suggestive hygienic measures to improve the quality of the examined products were discussed.

Microbiological hazards associated with meat consumption in hospitals

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Abstract

A total of one hundred samples of imported frozen raw meat, cooked meat and local frozen raw and cooked chicken meat (25 0f each) were randomly collected from Zagazig university hospital kitchen, Egypt for a microbiological examination. The results of bacteriological examination revealed that the mean count of aerobic plate count (APC) was 4.86 ± 0.2544, 4.81 ± 0.0807, 2.76 ± 0.2848 and 3.33 ± 0.7369 and the mean count of *Staph. aureus* was 2.15 ± 0.0509, 3.31± 0.3078, 0.77 ± 0.2120 and 0.65 ± 0.1994 log CFU/g for raw meat, raw chicken meat, cooked meat and cooked chicken meat, respectively. All examined samples were negative for *Salmonella* except raw chicken samples were positive (6\25) 24%, the isolated serotypes were *S. Typhimurium, S. Enteritidis, S. Infantis, S. Tsevie* and *S. Bargny.* The results of mycological examination revealed that the mean count of yeast was 2.55 ± 0.3459, 3.31 ± 0.3078, 1.48 ± 0.2752 and 1± 0.2546 and the mean count of mold was1.66 ± 0.3643, 1.50 ± 0.3562, 0.87 ± 0.2385 and 0.65 ± 0.2122 log CFU/g for raw meat, raw chicken meat, cooked meat and cooked chicken meat, respectively. The isolated mold genera were *Aspregillus, Penicillium, Apsedia, Geotrichum, Rhizopus, Alternaria and Mucor*. The identified *Aspregillus* species in the examined samples were *A. Flavus* **(**60.7%), *A. Nigar* **(**35.7%) and *A. Fumigatous* (3.6%).The results of this study indicate that meat in hospital kitchen is subjected to a contamination by several microorganisms resulting in serious health hazards on patients and other consumers.

Key words: Meat microbiology– Meat hazards – Food poisoning – Fungi

Incidence of some epidemiologically relevant food-borne pathogens in Some Ready to Eat Meat Products

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ABSTRACT:

Ready-to-eat (RTE) meat products are popular consumed in the world including Egypt. It could be easily contaminated with various food-borne pathogens and thus could be a main source of food-borne illness. Meat products are considered as an excellent source for supporting growth of such pathogens. The present study was intended to detect the contamination of some ready to eat meat products represented by luncheon, frankfurters, basterma and hot dogs (25 of each) sold in Alexandria, Egypt. Samples of meat products were analyzed for the presence of Enteropathogenic *Escherichia coli*, *Salmonellae* and pathogenic *Staphylococcus aureus.* The obtained results revealed that *E. coli* was isolated with an incidence of 40, 32, 60 and 24% in the examined samples, respectively and the serological identification revealed the presence of serotypes; O_{111}: k_{58} (EHEC), O_{124}: K_{72} (EIEC), O_{26}: K_{60} (EHEC), O_{128}: K_{67} (ETEC), O_{86}: K_{61} (EPEC) and O_{157}: H_7 (EHEC) with various rates. On the other hand, the incidence of *Salmonellae* was 4, 8, 8 and 4% in the examined samples, respectively with identification of *S. Enteritidis, S. Typhimurium* and *S. Dublin.* In addition, pathogenic *S. aureus* was isolated at the rate of 12, 16, 36 and 12%, respectively from the examined samples. The hygienic significance as well as public health hazards of each isolated microorganism, as well as the recommended measures to lower these microorganisms in investigated meat products and improve the quality of meat products were discussed.

Key words: Enteric– Bacteria– RTE– Meat– Products.

Effect of Essential Oils Blend with Black Pepper Oil or Radish Seed Oil on Broiler Performance, Serum Chemistry and Phagocytosis

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Abstract

This study was conducted to assess the effect of some essential oil blend with black pepper oil or radish seed oil on performance, digestibility, serum biochemistry and phagocytosis of broiler chickens. A total of 300one-day old chicks Ross 308wereallocatedinto equal six groups; each containing five replicates (10 chicks / replicate). The dietary groups wereT1 (-ve control) fed on control diet, T 2 (+ve control) fed on basal diet with addition of essential oils mixture 1g / kg diet which consist of equal amount of parsley oil, carrot oil and mint oil, T3 fed on +ve control diet with addition of black pepper oil (0.25 g/kg diet), T4 fed on +ve control diet with addition of black pepper oil (0.5 g/kg diet) , T5 fed on +ve control diet with an addition of radish seed oil (0.25 g/kg diet)and T6 fed on +ve control diet with addition of radish seed oil (0.5 g/kg diet).The results related to growth performance showed that dietary supplementation of essentials oils to broiler chickens significantly increased the final body weight gain (FWG) when compared with-ve control group.In addition, T6 group had significant increased (P<0.05) FWG with significant decreased (P<0.05) feed intake than other groups. The best feed conversion ratio and protein utilization were in T4 &T6 when compared with other groups. Apparent digestibility of dry matter, crude protein and ether extract was improved by increasing the level of black pepper oil or radish seed oil. The group supplemented by radish seed oil (0.5 g/kg diet) exhibited significant increased (P<0.05) total protein, albumin and globulin values than other groups. Triacylglycerol, total cholesterol level, very low-density lipoproteins and low-density lipoproteins was significantly decreased (P<0.05) in T4 and T6 groups than other groups. Moreover, the highest level of high-density lipoproteins was detected in T6 group. The best phagocytic percent was detected in the group receiving black pepper oil (0.5 g/kg diet) than other groups. Dietary supplementation with essential oil blend especiallywith0.5 g/kg diet fromradish seed oil had improved growth performance and lipid profile; as well, black pepper oil supplementation enhanced the growth performance and phagocytosis in broiler chickens.

Prevalence of *Listeria* species in marketed chicken and their giblets with application of some decontamination trials

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Abstract:

A total of 70 fresh and 80 frozen chicken samples comprising thigh muscle (fresh and frozen, 25 each), breast muscle (fresh and frozen, 25 each), liver (10fresh and 15 frozen) and gizzard (10 fresh and 15 frozen) were randomly collected from different localities and poultry shops of different sanitation levels at Zagazig city, Sharkia, 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 8 (11.43%) of fresh chicken samples and not detected in the frozen chicken samples. The serological results revealed that *L. monocytogenes* in the fresh chicken sampleswas 3 (4.2%), while *L.innocua* was 2 (2.9%), *L.welshemeri* was 2 (2.9%) and *L.seelegri* was 1 (1.4%). Further identification of *L. monocytogenes* was applied by using PCR technique. Dipping of chicken fillet in acetic acid and thyme extract (1% of each) for 2 hours reduced *L. monocytogenes* count by 43.67 and 20.43%, respectively. In a conclusion, the results confirm the contamination of chicken meat by *L. Monocytogenes.* Dipping of chicken in acetic acid 1% is an efficient strategy in reducing *L. monocytogenes* in chicken meat.

Key words: Chicken meat– *L.monocytogenes* – Virulence gene – Acetic acid – Thyme extract.

Prevalence of food poisoning bacteria in retailed chicken carcasses in Alexandria Province

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ABSTRACT:

Unfortunately, Chicken has higher pathogenic and spoilage bacterial counts than most other foods. The microflora in raw chicken carcasses is very heterogeneous, and it may already be present at the time of slaughter, introduced by the workers' handling and the cutting tools, or by water and air during dressing, evisceration, cutting, and packing. Evaluation of microbial hazards and their indicators would help to provide hygienic chicken meat for consumers. A grand total of 150 samples of retailed chicken carcasses represented by freshly slaughtered chicken, chilled chicken and frozen chicken (50 of each) were gathered randomly from different poultry's shops and supermarkets at Alexandria Province. Samples of chicken carcasses were analyzed for the presence of Enteropathogenic *Escherichia coli*, *Salmonellae, Campylobacter jejuni* and pathogenic *Staphylococcus aureus.* The obtained results revealed that *E. coli* was isolated with an incidence of 46, 54 and 42% in the examined samples, respectively and the serological identification revealed the presence of serotypes; O_{26}:K_{60} (EPEC), O_{86}:K_{61} (EHEC), O_{119}:K_{69} (EPEC), O_{126}:K_{71} (EIEC) and O_{124}:K_{72} (ETEC) with various rates. On the other hand, the incidence of *Salmonellae* was 8, 12 and 10% in the examined samples, respectively with an identification of *S. Enteritidis, S. Typhimurium* and *S. Haifa.* In addition, the incidence of *C. jejuni* in retailed chicken carcasses was 24, 16 and 20% in the examined samples, respectively. Finally, pathogenic *Staph. aureus* was isolated at the rate of 18, 20 and 14%, respectively from the examined samples of chicken carcasses. The hygienic significance as well as public health hazards of each isolated microorganism, as well as the recommended measures to lower these microorganisms in investigated chicken carcasses were discussed.

Key words: Enteric– Bacteria– Fresh– Chilled– Frozen Chicken

Microbiological assessment and hygienic decontamination trials of slaughtered food-animals using organic disinfectants

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Abstract

This study was conducted to investigate the microbiological state of slaughtered food-animal carcasses in general and to assess the probability of using organic disinfectants as a hygienic trial for meat surfaces decontamination. One hundred cattle and sheep surface swabs; 50 swabs, each were collected from a native slaughterhouse in Sharkia governorate, Egypt. All swabs were microbiologically assessed according to aerobic plate count (APC), total coliform count (MPN), total *Enterobacteriaceae* count (TEC), and total *Staphylococcal* count (TSC). Moreover, *Staphylococcus* aureus detection was conducted to reveal public health hazards of consumed meat. Besides, only cattle shoulder region surfaces were sprayed by organic disinfectants including, lactic and acetic acid 1% as a decontamination trial. All food-animal surface swabs were marked, bacteriologically inferior quality (IQ) carcasses, as all swabs were loaded by high Aerobic, *Coliform*, *Enterobacteriaceae*, and *Staphylococcus* counts. Furthermore, 20 and 34% of cattle and sheep carcass surfaces were contaminated with potentially hazard *Staphylococcus* aureus, respectively. Organic disinfectants decontamination trials revealed a pronounced reduction in cattle carcasses bacterial load especially lactic acid. In-deed the current results declare the complete absence of the abattoir hygienic view and consequently veterinary authorities future plan is urgently needed to eliminate human health threats via food chain.

Keywords; Food-animal– Hygienic decontamination– Organic disinfectant– Public hazards

The effects of the different day times in the changes of behaviour in broilers.

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Abstract:

Assessing behaviors of broiler are one tool helpful in assessing welfare, including the impacts of management systems. A total of 100 one-day old chicks were purchased from a commercial hatchery. The experimental chicks were distributed randomly into five replicate brooders treatment (20 birds for each replicate) were compared during three periods in the day: morning, noon and afternoon. There was a non-significant difference of eating, drinking times and frequencies within the daytime, although the times and frequencies of eating, drinking were higher during morning and afternoon respectively than other times. Broilers at morning were more active, as expressed by a significant increase in walking and running behaviors. While, birds at noon time were calmer than other times, where laying, crouching, huddling, sleeping times were significantly higher at noon than others. There were no significant differences observed in the feather pecking and aggression times and frequencies. Form this study, can mention that the changes in the day times have significant effects on behaviors of broilers, especially in the most of normal behaviors.

Key words: Broilers – Light– Behavior– Welfare– Performance.

Prevalence of some food poisoning bacteria in ready-to-eat meals containing meat and chicken

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Abstract:

A total of 120 ready-to-eat meals containing meat including (shawerma, kofta, sausage and hawawshi) and chicken including (chicken shawerma, pane, shish tawook, grilled chicken) (15 of each) were collected from different restaurants in Sharkia governorate. for evaluation of bacterial food poisoining. The obtained results revealed that the mean values of total aerobic plate was 3.7×10^5 , 2.2×10^5 , 8.4×10^5, 1.5×10^5CFU/g for shawerma, kofta, sausage and hawawshi respectively and 5.8×10^5 , 8.9×10^4, 3.7×10^5, 7×10^4 for chicken shawerma, pane, shish tawook, and grilled chicken, respectively . The mean value of coliform count in shawerma, kofta, sausage and hawawshi meals are 71, 39.8, 695 and 74.6 respectively and for chicken shawerma, pane, shish tawook, grilled chicken was 20.3, 148.12, 15.45 and 203.6 respectivly. The presence of Staph aurus was 13%, 27% and .20% in pane, Grilled chicken and hawawshi while not detected in other samples. *Salmonella* fail detection in all samples . The presence of *E.coli* by a percentage of 13 %, 27%, 20%, and 7 % in pane, Grilled chicken, chicken shawerma and shish tawook, respectively and 20%, 13%, 13% and 7% in hawawshi, kofta, shawerma and sussag respectively. These findings demonstrate that ready-to eat meals and sandwiches sold in Sharkia governorate constitutes a likely potential hazard to human health. This is due to high bacterial load and isolation of specific pathogens as *Staph. aureus* and *E.coli* Spp. And coliform at which presence of such microorganisms in RTE food constitute a significant risk and render this type of food of low quality and unfit for human consumption. Consequently, measures to control the quality of the raw material, environmental and hygienic conditions during preparation and serving should be taken for the production of relatively safe street-vended foods with low bacterial counts. Also, Health agency personnel, vendors and consumers of the street vended food need to be informed of the hazards and appropriate preventive measures. While there is still no microbial guideline value for Egyptian RTE foods, the adoption of the published guideline values of center of food safety may be appropriately used until more comprehensive guideline values for Egyptian RTE foods are be established.

Assessment of chemical and bacteriological quality of goat's milk

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Abstract

In recent years, the popularity of goat's milk has been growing in Egypt, especially for its low allergenic potential and good digestibility. A total of 100 goat milk samples were collected randomly farmer and smallholder at Alexandria governorates for evaluation of chemical and bacteriological quality. The results revealed that goat milk contains a high amount of Ca, ph, Na and K. Regarding, essential amino acid (leucine followed by lysine) and non-essential amino acid (glutamic followed by proline) were found in a high amount. Chemical evaluation of examined goat milk revealed that the mean values of fat, protein, lactose, SNF, and mineral was 4.14±0.09, 3.57±0.02, 5.27±0.03, 9.80±0.06, and 0.78±0.01, respectively, while the mean pH value was 6.79± 0.007. Bacteriological evaluation of goat milk samples showed that the mean values of aerobic mesophilic, Coliforms and *Staph. aureus* counts was $7.4x10^3 \pm 0.13x10^3$, $4.5x10^3 \pm 0.25x10^3$ and $1.5x10^3 \pm 0.07x10^3$ with incidences of 85,61 and 45%, respectively. The bacteriological quality of goat milk samples showed a high initial Coliform and *Staph*. aureus counts indicates possible poor hygienic practices and personal hygiene at farm level so, requires immediate attention as it can cause a serious public health risk to consumers.

Keywords: Goat milk– Amino acid– Trace elements– TBC– Coliforms– *S. aureus*

Effect of supplementation the broiler diets with some phytobiotics and probiotics on the growth performance, digestibility, immunity and cecal microbial count.

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ABSTRACT

This study was assessed to estimate the effect of using two types of probiotics (Biogreen-E & CloSTAT) and two types of phytobiotics (1% dried rosemary and 1% dried peppermint) as alternative growth promoters to antibiotic on growth performance, digestibility, microbial count of the intestine, intestinal histology and immunity of broiler chickens. A total number of 180 one-day old ROSS (308) broiler chicks with initial weight (40.56± 0.87) were randomly allocated into 6 experimental groups with 3 replicates in each (30 birds/ group). Experimental treatments consisting of; control group fed "basal diet with no additives"; basal diet supplemented with Biogreen-E (2 g/kg diet); basal diet supplemented with CloSTAT (2 g/kg diet); basal diet supplemented with 1% dried Rosemary powder; basal diet supplemented with 1% dried peppermint powder; basal diet supplemented with antibiotic (Oxytetracyclin 1g/kg diet). The results showed that supplementation the broiler chicken diets with oxytetracycline, probiotics, 1% dried rosemary improved the total body weight gain significantly compared with the control group and group supplemented with 1% dried peppermint. Groups supplemented with the two types of phytobiotics, the two types of probiotics and oxytetracycline had improved immune response and significantly increased the lactobacillus count, also decreased the total microbial and total coliform count. Supplementation the diet either with probiotics or 1% peppermint had a significant decrease in levels of total cholesterol and triacylglycerol in the blood of broiler chickens. Conclusion, it can be concluded that both types of probiotics and 1% dried rosemary can be used in the broiler diets as natural feed additives alternative to antibiotics without any hazards.

MYCOLOGICAL EVALUATION OF VARIOUS CLASSES OF BEEF LUNCHEON

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Abstract

This study was performed to assess the mycological status of beef luncheon. Sixty random samples of beef luncheon were collected from various supermarkets at Qena City. Samples were classified according to their prices into three classes; high price (A), medium price (B) and low price (C) (20 of each). The incidence of moulds in the examined samples was 7 (35%), 12 (60%) and 9 (45%) for class A, B, and C, respectively. The mean values of total mould counts in examined samples was $9.5\times10\pm3.8\times10$, $1.2\times10^2\pm5.2\times10$ and $1.3\times10^2\pm 8.7\times10$ cfu/g for luncheon samples class A, B, and C, respectively. Six mould genera were identified from the examined luncheon samples, *Aspergillus*, *Cladosporium*, *Scopulariopsis*, *Penicillium*, *Paecilomyces* and *Mucor* with different percentages. In addition to, genus *Aspergillus* was furthermore identified as *A. flavus link*, *A. niger*, *A. fumigatus*, *A. terreus* and *A. sydowii*. The present study concluded that the highest price luncheon sample (class A) had a better mycological status than other classes indicating that the level of hygiene during the processing was better than other classes. The public health importance of the mycological examination and the possible source of moulds contamination as well as recommendations concerning enhancement of the hygienic status of beef luncheon were discussed.

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

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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 an isolation and identification of *Salmonella*, The molecular characterization of the existed *Salmonella* isolates using PCR for a detection of their virulent genes, the data showed that 5.9 % of samples were contaminated with salmonella 57.7 % of them from liver, 27% from kidney, 15.5% from skin excision and zero from swabs. The cattle and camel liver samples are the most contaminated, while the cow samples show a high contamination in kidney samples, skin excision for cattle are the most and only one swab sample from the camel show positive result for *Salmonella*. The isolated *Salmonella* was Serological identified. *S. Typhimurium* was the predominant one (7 isolates /26.9%), followed by *S. enteridiidis* (5 isolates /19.2%), *S. Infantis* (4 isolates /15.3 %), *S. Montevideo* and *S. Virchow* (3 isolates / 11.5% each), *S. Heidberg* (2 isolates / 7.6 %), *S. Haifa* and *S. paratyphi* (one isolate /3.8 % each) . Out of 25 livers samples, 15 were found to be positive for salmonella, among them 5 were *S. Typhimurium, 2 S. Montevideo, 2 S. Enteridiidis and 2 S. Virchow, 1S.Haifa, 1S. paratyphi,1S. Infantis and 1 S. Heidberg.* Among 10 kidney samples, 8 *Salmonella* isolates were identified (3 *S* . *Enteridiidis*, 2 *S. Typhimurium*,2 *S. Infantis* and 1 *S. Montevideo*), while in skin excision samples, three isolates from (1 *S. Virchow*,1 *S.Heidberg* and 1 *S. Typhimurium*) were identified . No salmonella were recovered from swabs samples.

Keywords: *Salmonella*– Contamination– Cattle– Camel– Buffalo– Abattoir– Liver– kidney – PCR

Prevalence of *Micro Sarcocystis* in slaughtered animals in North Sinai Province.

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Abstract:

Sarcocystis are obligate intracellular protozoan parasites, which can induce infection in carnivorous and herbivorous host. Two forms of infection are recognized in human, which included intestinal and muscular forms with or without symptoms. The infection was acquired by ingestion of cyst through eating of undercooked infected meat. The aim of this study was carried out to assess the prevalence of *micro-cysts sarcocystis* in slaughtered animals in North Sinai province Egypt. 650 fresh tissue samples were collected from 130 apparently healthy animals free from *Macro Sarcocystis* and included 40 sheep, 40 goat, 10 camels and 40 cattle carcasses slaughtered at El-Arish general abattoir. The samples collected during the period from January to June 2017. Ten gm each of esophagus, diaphragm, heart, tongue and skeletal muscles samples were taken from each animal and examined by Pepsin HCl. Digestion Method for detection of bradyzoites of sarcocystis. The prevalence of *micro sarcocystis cysts* infection in slaughtered sheep, goats, camels and cattle carcasses were 17 (42.5%), 29 (72.5%), 8 (80%) and 8 (20%) respectively. The incidence of infection in examined samples was 82.35% in diaphragms of sheep, 58.62% in diaphragms of goats, 87.5% in skeletal muscles of camels and 87.5% of skeletal muscles, tongue and heart of cattle. The digestion method is a sensitive, simple and rapid test for diagnosing sarcocystis infection in slaughtered animals. Different stages of sarcocystis were seen in the positive samples and the findings indicated that the prevalence of the *micro sarcocystis* infection was high and constitute a public health hazard.

ASSESSMENT OF QUALITY AND SAFETY OF MANDI MEAT MEALS

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Abstract

Mandi, minadi and mandy is a conventional Yemeni meat meal. It is presently exceptionally well known in different territories of the Arabian Peninsula and various Arab countries as Egypt, Levant and Turkey. It is likewise famous among the Hadhrami individuals in the Malabar district of Kerala, India. "Mandi" originates from the Arabic word "nada ", which meaning dew, and reflects the moist dewy texture of the meat. Mandi is generally produced using rice, fresh meat of sheep or chicken, and with a blend of flavors which finally the meat were slow cooked in Taboon oven, in which the meat was slow cooked without touching the charcoal for about 4 hours, and the final mandi meat should not be crusty in appearance. The idea of Mandi fast meal food is that the meat is cooked with a heat and the dissolved fat and meat juice dripped on the rice at the bottom, which gives the final Mandi meat its specific taste and aroma. Thirty each of Mandi chicken Breast and Thigh (250 g) meat samples were collected from different Mandi food services establishment in North Sinai governorate and prepared for bacteriological quality analysis. The mean values of the TBC, Coliforms, ASF, *Staph.aureus* and Enterobacteriaceae counts in breast and thigh chicken mandi muscle samples was 10^2 , 10^2 ; 10^2 ,$3x10^2$; $3x10^2$, $3x10^3$; 10^1 , $6x10^1$; $2x10^1$, $3x10^1$ respectively .while salmonella spp. and *Clostridium perfringes* could not be detected in all examined samples.

Parasitic affections in slaughtered animals at Hurghada abattoir and its economic losses impact

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Veterinary directorate at Red sea governorate

Abstract

This study was conducted to evaluate the prevalence of parasitic affection in slaughtered animals at Hurghada abattoir (Red sea governorate) with assessment of the economic impact due to condemnation of affected meat from January 2015 to December 2015. A total number of 9276 slaughtered animals (5598 cattle,603 buffaloes, 2729 sheep, 234 goat,112camel) were examined post mortem The overall prevalence of Fascioliasis was proved to be 172 (1.8%) The prevalence of Fascioliasis in cattle, buffaloes sheep were 41 (0.7%), 5 (4.9%) and 126(4.6%), respectively. In goats and camels Fascioliasis could not be detected. The estimated economic losses due to condemnation of affected liver were 24,619.33 EGP (£). The prevalence of cysticercosis in cattle, sheep were confirmed to be 29(0.5%), 22(0.8%) respectively. No cystcerci could not be detected in buffaloes, goats and camels. The economic losses due to condemnation of heart, head, carcass were estimated by 22,752.5 EGP (£).The prevalence of hydatosis in cattle, sheep, camel were confirmed 1(0.01%), 24(0.87%), 7(6.2%) respectively, no hydatid cyst were detected in buffaloes, goats. The economic losses of condemned affected parts due to hydatid cysts affection were estimated by 2416 EGP (£).

Keywords: Slaughtered animals - Cystcerci - Fasciola - Hydatid cyst.

Nisin and natamycin loaded on chitosan microcapsules to prevent surface microbial growth of ras cheese.

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Abstract

Surface contamination and spoilage of hard cheeses is considered one of the major deviation of product safety. Thus, this study aimed to exploit the potential antimicrobial effect of chitosan microcapsules loaded with nisin and natamycin in extending ras cheese's shelf life. For this, two concentrations were assessed (0.1 and 0.5%) against some microbial parameters (aerobic mesophilic count, total *Escherichia coli* count, total pseudomonas count and total yeast and mold counts). Ras cheese treatment with 0.5% Chitosan-nisin/natamycin microcapsule was found to have a superior preservative action and significantly extended ras cheese shelf life. From these obtained results, it is recommended to apply this treatment to improve the hygienic quality of ras cheese.

Raw milk and kariesh cheese as a source of multidrug resistant *Acinetobacter* spp.

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Abstract

Acinetobacters are group of emerging foodborne pathogens with underrated role in foodborne diseases. Therefore, this study was conducted to evaluate the role of raw milk and kariesh cheese in transmitting those emerging pathogens. 80 samples (40 each of raw milk and Kariesh cheese) were analyzed to determine the presence of Acinetobacter spp., using CHROMagar™ Acinetobacter media. Biochemical identification and antimicrobial resistance were conducted to identify and characterize isolated strains. Obtained results revealed that *Acinetobacter calcoaceticus* - *A. baumannii* complex (Acb), and *A. haemolyticus* were successfully isolated from examined samples with varied percentages. Different Antimicrobial resistant patterns were observed with a presence of multidrug resistant Acb strains. This study focuses on the need of examining dairy products for *Acinetobacter* spp. due to their public health importance.

Hepatoprotective Effect of Phoenix Dactylifera Against Gentamicin-Induced Hepatotoxicity

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Abstract:

Background: Gentamicin (GM) is an aminoglycoside used clinically against Gram negative bacteria because of its efficacy. However, it causes hepatic injuries even in therapeutic dosages on account of induced oxidative stress. Date palm, *Phoenix dactylifera*, is known to its high content of antioxidants, flavonoid and phenolic compounds. Therefore, in this study, we investigated the potential protective effect of aqueous extract of date palm fruit against the toxic effect of GM on liver in rats.

Materials and methods: Thirty five Wistar albino rats were randomly divided into 5 groups, 7 rats each. Control group was received saline orally and interproteineally; DE group, received date aqueous extract orally for 39 days; GM, received gentamicin (80 mg/kg i.p) daily during the last 9 days; GM+DE 0.5, received GM and DE (80 mg/kg, 0.5 gm/kg); and GM+DE 1, received GM and DE (80 mg/kg, 1gm/kg). Plant extract was identified using Gas chromatograph-Mass spectrometry. Blood and tissue samples were collected for further analyses.

Results and discussion: GM significantly increased AST, ALT, and ALB levels along with severe damage shown in live tissue in GM-intoxicated rats. However, DE treated rats showed significant improvement in liver function tests as well as in histopathological examination. This improvement in Date treated groups may be contributed to the high antioxidant effect of date extract against GM-induced liver injury.

Economic impact of foot and mouth disease outbreaks on smallholder cattle farmers in Egypt: A case study

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Abstract

Foot-and-mouth disease is endemic in Egypt with several outbreaks each year. However, the impact of the disease on smallholder farmers in the country is scarce. This study presents a quantitative assessment of visible direct and indirect losses of foot and mouth disease outbreaks on smallholder cattle farmers. Data were collected by using questionnaires administered to 147 smallholder cattle farmers in five cities of Sharkia province that recently affected by an FMD outbreak from February to April 2017. Foot and mouth disease morbidity and mortality rates at animal level in the affected herds were 62.7 and 2.6%, respectively. A higher mortality was seen in calves (9.8%) than the other categories of cattle, whereas the higher morbidity was recorded in cows (68.9%, $P<0.001$). The economic losses of foot and mouth disease outbreak due milk loss, mortality loss and treatment costs were on average $198.4 per affected herd. The major loss due to the disease occurred as a result of mortality losses ($100.4) followed by milk losses ($52.5) whereas treatment costs were the lowest ($45.5). Although the presented assessment on the economic losses accounted only for the visible impacts of the disease on herd level, these conservative estimates indicate potential economic gains from control intervention.

Keywords: Cattle–Economic– Foot and mouth disease– Smallholder farmers– Egypt.

Antimicrobial Activity of Different Extracts of Dill and Parsley against Some Food-borne Pathogens

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Abstract

Enhancement of food safety is the major target by increasing interest in natural preservatives, which has antioxidant, antimicrobial properties and more healthy specially in meat which is highly susceptible to a microbial growth, it can cause its spoilage and contributes to food borne diseases in human, resulting in serious health problems. The objective of the present study was to; (i)comparing the antimicrobial activity of water extracts & essential oils of dill and parsley by sensitivity test against *Staph. aureus*, *E..coli*, *Salmonella* spp. & *Shigella* spp. (ii)evaluate their inhibitory effect against food spoilage and some food-borne pathogens; (TBC) (*Staph. aureus*, *E. coli*, *Salmonella typhenurum*. and *Shigella desentri*). Using 2 extraction methods; (water extraction & hydro distillation) methods, the extraction of dill & parsley were added to minced meat by different methods; (control sampling, coating, dipping, 1.5% concentrations and 3% concentration). Results declared that the highest inhibition zone were about (20 mm) against *Staphylococcus areus* recorded by dill oil, (10 mm) was the Dill oil inhibition zone against *E.coli* while dill water extraction was about (8 mm) against *Staph. areus* and (6 mm) against *E.coli*. both parsley extraction didn't any inhibition against all test microorganisms. The mean counts for Total Bacterial Count of the minced meat samples, which treated with dill extract, dill oil, parsley oil & parsley, extract by different methods was; ($11.62X10^4 \pm 1.79X10^4$, $5.63x10^4 \pm 1.7X10^4$, $6.13X10^4 \pm 2.45X10^4$, $6.15X10^4 \pm 1.78X10^4$, $13.86X10^4 \pm 4.72X10^4$) cfu/g. in control samples, coated, dipped, 1.5% & 3% concentration of dill extract treated minced meat samples respectively. The mean values in case of treated minced meat with dill oil was; ($12.72X10^4 \pm 4.07X10^4$, $13.18X10^4 \pm 4.03X10^4$, $4.08X10^4 \pm 2.12X10^4$, $1.46X10^4 \pm 5.61X10^3$) cfu/g. in coated, dipped, 1.5% & 3% concentration of dill oil treated minced meat samples respectively. In parsley extract treated minced meat samples the mean values were; ($5.58X10^4 \pm 1.41X10^4$, $1.2X10^4 \pm 1.34X10^3$, $13.18X10^4 \pm 4.45X10^4$, $9.06X10^3 \pm 1.15X10^3$) cfu/g. in coated, dipped, 1.5% & 3% concentration of parsley extract treated minced meat samples respectively. While, parsley oil treated minced meat samples recorded the following mean values; ($5.72X10^4 \pm 8.6X10^2$, $4.6X10^3 \pm 2.82X10^3$, $8.14X10^4 \pm 3.41X10^4$, $1.58X10^3 \pm 4.87X10^2$) cfu/g. in coated, dipped, 1.5% & 3% concentration of parsley oil treated minced meat samples respectively. Obtained results revealed that although dill oil were the most effective against some pathogenic microorganisms (*Staph. areus* and *E.coli*) but parsley oil were the more effective against (TBC). Treated meat by adding 3% concentration of the parsley oil were the most antimicrobial effective method. The study recommended usage of Essential oils of dill & parsley as safe and natural antimicrobial meat additives to prolong shelf life of meat product due to its high antibacterial activity against meat spoilage & meat pathogens. On the other hand, water extract of dill & parsley extract showed a mild effect against most meat spoilage and meat pathogens.

ESTIMATION OF ORGANOCHLORINE PESTICIDE RESIDUES IN RAW MILK

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Abstract

Milk is nearly a perfect natural food, is widely used by all segments of our population especially for infants and elderly. Organochlorine pesticides (OCPs) have been used worldwide, particularly in many African countries as in Egypt for the control of pests. OCPs are characterized by their bio-accumulation in the environment especially in the food chain, where they find their way into the human body. The objective of this study was to estimate the residual concentrations of different OCPs in three kinds of fresh and raw milk including cattle, buffalo and goat milk. The tested OCPs included pp-DDT and its metabolites pp-DDD and pp-DDE; hexachlorohexanes (HCHs) including α HCH and γ HCH; heptachlor and heptachlor epoxide; aldrin and endrin; chlordane, methoxychlor and hexachloridebenzene. The recorded results revealed that goat and buffalo milk had the highest incidence of OCPs contamination with 75%; while this percentage was 50% in cow's milk. The mean values of Σ OCPs in the examined milk samples was 317.83 ± 34.11, 605 ± 50.54 and 1210.57 ± 99.55 (ppb/ww) in the examined cattle, buffalo and goat milk samples, respectively. All examined OCPs were within the maximum permissible limits (MPLs) set by world health organization with only 10%of goat milk samples exceeding this MRL.The public health importance of such OCPs was discussed.

Key words: Milk– organochlorine pesticides – Public health importance

Improving the physico-chemical, sensory and bacterial quality of chicken patties using fruit peels powders

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Abstract

The objective of the current study was to include fruit peel powders during formulation of chicken patties to improve the physico-chemical, sensory and bacterial quality of these patties. Four formulae of chicken patties were prepared with addition of 1% of each of orange, grapefruit, lemon and banana peel powders, beside the control untreated formula. An increase in protein and a decrease in fat contents with pronounced antioxidant activities were achieved by incorporation of these fruit peel powders in the chicken patties. Moreover, a clear antibacterial activities and improvement in the sensory scores were observed in fruit peel powders treated patties. In a conclusion these fruit peel powders could achieve benefits for the industry from economic incomes and for the consumer from the excellent nutritional values. Therefore, the food industry may use these peels powders as a natural source of antioxidants, antibacterial and health promoting functional ingredients in poultry meat processing.

Keywords: Fruit peels powders– Chicken patties– Physico-chemical– Sensory– Bacterial quality

Conclusion the Food Biological Hazards through the Bacterial Loads of Kitchen Insects (*Cockroaches*) as a Mechanical Vector, Taif, KSA

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Abstract:

This paper was for "Conclusion the food biological hazards through the bacterial loads of kitchen insects (Cockroaches) as a mechanical vector, Taif, KSA", the mean incidence of bacterial loads turbidity was (3rd, 1st, 2nd, 4th and 5th group) as (98.0, 97.2, 96.9, 96.5 and 96.2%) respectively, the mean was 96.96%. The mean incidence of bacterial growth evaluation was heavy growth in all groups, were in (3rd, 1st, 2nd, 4th and 5th group) as (78.5, 77.2, 76.3, 76.1 and 76.0%) respectively, the mean revealed 76.82%. The mean incidence of bacterial Colony Forming Unit (CFU) / mL evaluation, the mean was (3.3 X 10^5) / mL, were (3.8, 3.5, 3.3, 3.1 and 2.9 X10^5) / mL, for (3rd, 1st, 2nd, 4th and 5th group) respectively. The mean incidence of bacterial spp isolated, produced 12 bacterial spp was (*E. coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Proteus Spp* and *Citrobacter spp*) as (19.1, 16.2, 13.3, 12.2 and 8.3%) respectively, followed by bacteria spp of (*Shigella*, *Staph.*, *Strept.*, *Serratia*, *Bacillus*, *Salmonella* and *Campylobacter*) were (7.5, 6.4, 4.5, 4.2, 3.8, 2.4 and 2.1%) respectively. The conclusions confirmed the role of Cockroaches was as a mechanical vector, transferred and dropped of the pathogenic bacteria which caused food biological hazards, so the insect control center (Insecticiders) must be arranged to eradicate the Cockroaches and also the kitchens hygiene must be improved.

Keywords: Bacterial loads– Cockroaches–Mechanical vector–CFU / mL– Spp.

Microbial load and chemical properties of raw cattle milk consumed in El- Behera, Egypt

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ABSTRACT

In this study, the microbial load and chemical properties of raw cattle milk in El-Behera province, Egypt was studied. A total of 50 raw cattle milk samples were collected from different producers and were analyzed for microbiological and chemical properties. Storch's test was done to all examined raw cattle milk samples for detection of heat treatment. For the microbiological examination, Samples were analyzed for total aerobic mesophilic bacteria, total coliforms and Staphylococcus aureus count. For the chemical analysis fat content, solids not fat content, protein, lactose and acidity content were performed. Chemical composition revealed that the mean values of fat %, protein%, lactose%, non -solid fat% and acidity% was 3.6140 ± 0.19073, 3.4318 ± 0.0653, 4.9804 ± 0.09356, 9.1494 ± 0.17269 and 0.1680 ± 0.00401, respectively. The mean value for mesophilic aerobic bacterial count, Coliform count and Staphylococcus aureus counts was $40.9 \times 10^5 \pm 19.4 \times 10^4$, $3.9 \times 10^4 \pm 1.7 \times 10^3$ and $3.3 \times 10^4 \pm 2.9 \times 10^3$, respectively. Pathogenic bacteria (E. coli and Staph. aureus) were detected in some of the examined market milk samples. A high microbial load of examined market milk may represent a public health hazard to the consumers and emphasizes the need for improved hygienic standards. The hygienic and health importance of these foodborne bacteria were discussed.

Detection of Some Pathogenic Bacteria in Raw and Processed Chicken Products in Alexandria Province

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Abstract:

The presence of pathogenic bacteria in chicken products will render them unsafe to consumers as they are encountered in causing food poisoning as well as they reflect the hygienic status of these products. A total of 100 random samples of chicken products represented by raw products (burger and fillet) and processed products (strips and luncheon) (25 of each) were collected from different supermarkets at Alexandria province. Samples were subjected to bacteriological examination in the laboratory of the Food Hygiene Department, Faculty of Veterinary Medicine, Alexandria University for isolation of some pathogenic bacteria including *E. coli, Salmonellae and Shigella*. The obtained results revealed that the incidence of *E. coli* in chicken burger, fillet, strips and luncheon was 64, 52, 12 and 16%, respectively and serotyping of the obtained isolates revealed the detection of O_{111}: k_{58} serotype **(**EHEC), O_{124}: K_{72} serotype **(**EHEC), O_{26}: K_{60} serotype **(**EHEC), O_{128}: K_{67} serotype **(**ETEC), O_{86}: K_{61} serotype **(**EPEC) and O_{157}: H_7 serotype **(**EHEC) with different rates. In addition, it was found that the incidence of *Salmonellae* in chicken burger, fillet and luncheon was 20, 8 and 8%, respectively. On contrary, *Salmonellae* could not be isolated from chicken strips. Serological identification revealed the detection of *S. Enteritidis, S. Virchow* and *S. Kentucky*. Finally, it was recorded that the incidence of *Shigella* in burger, fillet and luncheon was 48, 36 and 8%, respectively. On contrary, *Shigella* could not be isolated from chicken strips. Based on the recorded results in the current study, it was clear that the examined samples of raw chicken products were highly contaminated with investigated bacteria when compared with the processed chicken products that may be attributed to unhygienic environment during slaughtering and preparation.

The Possibility of *Salmonella* Bacteria Food Transmitted, which Caused A Zoonotic Disease, Taif, KSA

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Abstract:

This paper for "The possibility of *Salmonella* bacteria food transmitted, which caused zoonotic disease, Taif, KSA", the prevalence of *Salmonella* bacteria were isolated from different food types of animal origin, that were resulted in sero typing were produced *Salmonella para-typhi* group (A, B and C) as (17.5, 25 and 10%), *Salmonella non-typhi* was 35%, *Salmonella enteritidis* 5% and *Salmonella spp* 7.5% respectively. The prevalence of *Salmonella* bacteria were isolated from kitchen hand workers were produced *Salmonella para-typhi* group (A, B and C) as (24.1, 34.5 and 13.8%), *Salmonella non-typhi* was 48.1%, *Salmonella enteritidis* 6.7% and *Salmonella spp* 13.8% respectively. The prevalence of *Salmonella* bacteria was isolated from kitchen tools produced *Salmonella para-typhi* group (A, B and C) as (26.3, 37.5 and 15%), *Salmonella non-typhi* was 52.5%, *Salmonella enteritidis* 7.5% and *Salmonella spp* 11.3% respectively. The results found that food was a vector, transporting a large quantity of zoonotic bacteria such as *Salmonella* bacteria, which caused food poisoning and were a zoonotic diseases that affected the individual and community health. That concluded from the results that food played a major role in the transmission of zoonotic bacterial pathogens. The " World Food Organization" should be advisable the food microbial contamination control methods, and also should be recommended the control method through the different sources of animal sources food such as: (farms, slaughterhouses, factories and warehouses), that in order to preserve the food quality and the individual and community health.

Keywords: Zoonotic disease– *Salmonella para-typhi, non-typhi, enteritidis, spp*.

Quality evaluation of some edible oils used for deep frying with special reference to Trans fatty acids

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Abstract

The present study was conducted to evaluate the quality of edible oils available in Egyptian market and the effect of repeated frying on different parameters (iodine number, acid value, peroxide value) and fatty acids composition of oils. Thirty samples of blend of refined sunflower oil, refined soya-bean oil and refined olein oil with different brands were purchased. Before and after first, second and third frying, the oil was examined for iodine number, acid value, peroxide value and fatty acids composition. Fatty acids composition was also determined for potato chips of three frying sessions. Analysis showed that the peroxide value (40.00, 56.00 and 60.00) mEq/kg oil significantly ($p< 0.05$) deviate from Egyptian standards (10 mEq O_2/kg oil, 2142/2005) after first, second and third frying process respectively, while the acid value (1.34 mg of KOH/g) was non-conform with limit (0.6 mg/g oil) after second and third frying only. In terms of fatty acids composition; the significant increase and decrease of total saturated and unsaturated fatty acids in third fried potato oil extract respectively. Poly-unsaturated fatty acids drastically decrease (50.42%) after third frying of oil extracted from potato. These results may indicate the development of oxidative rancidity after all times of frying and presence of trans fatty acid in third fried potato oil extract.

Keywords: Edible oils– Acid value– Peroxide value– Fatty acids composition– Trans fatty acid.

PREVALENCE OF LISTERIA AMONG POULTRY CARACASSES

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Abstract:

A total of 200 fresh chicken samples comprising thigh, breast muscles, gizzrads and liver samples (50 for each), were randomly collected from different localities and poultry shops of different sanitation levels at Mansoura city, Dakahlia, Egypt 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.

Keywords: Chicken meat – *L. monocytogenes* – Virulence gene.

Detection of *Listeria monocytogenes* using MPN-PCR in meat products and its survival during refrigeration and frying

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Abstract

A total of 300 sausage and burger samples (150, each) were investigated for the prevalence and quantification of *L. monocytogenes* using MPN-PCR method. The survival over 20 days of refrigeration and freezing storage was also investigated. The microbial load of *L. monocytogenes* ranged from 9.2 to 28 MPN/g, most of the samples (50%) had a microbial load of 15 MPN/g, while 20% had a microbial load of 20 MPN/g. During refrigeration, *L. monocytogenes* increased from (6.97±0.007 log CFU/g) to (8.05±0.001 log CFU/g) after 5 days and remained unchanged till the end of the 20th day. However, at freezing temperature, *L. monocytogenes* levels decreased to 6.35±0.019 log CFU/g after storage for three days then significantly increased from the fifth day till the end of the experiment (6.88±0.001 log CFU/g). *L. monocytogenes* was not detected in meat burger patties that were fried for 6 minutes. In a conclusion, MPN-PCR is a sensitive method for detection and quantification of *L. monocytogenes* in meat products.

Keywords: *L. monocytogenes* – Meat products– MPN-PCR– Survival– Frying.

HYGIENIC STATUS OF MARKETED QUAIL CARCASSES

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ABSTRACT

A total of one hundred random samples of freshly slaughtered and frozen quail carcasses (50, each) were randomly collected from different localities and poultry shops of different sanitation levels at Zagazig city. The collected samples were examined organoleptically, chemically and microbiologically in addition to application of some trails for improving the sanitary status of such quail meat by using acetic acid, citric acid and lactic acid (1%, each). The results showed that pH, total volatile- nitrogen (TVN)(mg %) and thiobarbituric acid (TBA)(mg/ kg) were 5.84 ± 0.01, 6.15 ± 0.9 and 0.18 ± 0.01 for fresh quail samples and 6.01 ± 0.02, 10.7 ± 2.28 and 0.27 ± 0.03 for frozen quail samples. The mean values of aerobic plate count (APC), total Enterobacteriaceae count, total *Staphylococcus. aureus* count, total psychrotrophic count was 6.65 ± 0.04, 4.27 ± 0.1, 4.18 ± 0.28 and 6.28 ± 0.02 cfu/g, respectively, for fresh quail samples and 5.94 ± 0.23, 3.36 ± 0.23, 2.75 ± 0.3 and 5.59 ± 0.13 cfu/g, respectively, for frozen quail samples. Meanwhile, total yeast and mold count was 6.34 ± 0.03 and 5.4 ± 0.21 for fresh quail samples, 5.03 ± 0.08 and 4.48 ± 0.31 cfu/g for frozen quail samples. In a conclusion, the acetic acid 1% was the best acid used to control APC, total Enterobacteriaceae count, total *Staph. aureus* count, total psychrotrophic count, total yeast and mold count in a quail meat and to achieve a higher safety of the products with a satisfaction of the consumers.

Keywords: Quail– Organoleptic, physicochemical– Microbiological– Organic acids.

Discrimination of Gram-positive bacteria isolated from raw bovine milk based on 16S rRNA gene sequencing

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Abbreviations: NCBI, National Center for Biotechnology Information; IMI, Intramammary infection; PCA, Plate count agar; BHI, Brain heart infusion.

Abstract

One hundred raw bovine milk samples were collected from different bovine dairy farms at Lugo and La Coruna provinces, Spain for the aim of bacteriological investigation. One hundred and six strains of different Gram-positive bacterial species were isolated from examined milk samples, and have been successfully identified based on 16S rRNA gene sequencing. All of the studied strains were subjected to phylogenetic analysis based on targeted approximately 800-bp fragment of 16S rRNA gene. The phylogenetic analysis based on 16S rRNA GS, has allowed in at least considerably acceptable discrimination between Gram-positive species and subspecies isolated in the current study. With exception to 7 isolates where the identification was only limited to the genus level, all remaining isolates have been identified to the species or subspecies level. Finally, the sanitary status of raw milk samples and importance of isolates were discussed.

Isolation and characterization of T4-like lytic bacteriophage infecting antibiotic resistant *E coli*

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Abstract

A total of 100 random samples of chicken carcasses were collected from local commercial retail shops in El-Sharkia governorate, Egypt. All samples were bacteriologically examined for a determination of aerobic plate count (APC), Enterobacteriaceae count, Coliforms count. In addition, isolation and identification of *E. coli* was attempted. The mean values of APC was 5.59 ± 0.06, 6.04 ± 0.02, 8.02 ± 0.03and 8.17 ± 0.08 log10 cfu/g in chicken breast, chicken thigh, liver and gizzard, respectively. While the mean values of total Enterobacteriaceae was 3.75± 0.07, 3.88 ± 0.06, 4.46 ± 0.05 and4.60 ± 0.06 in breast, thigh, liver and gizzard, respectively. The mean values of the coliforms (MPN) was 2.17 ± 0.08, 2.50 ± 0.05, 2.78 ± 0.07 and3.08 ± 0.08 in examined chicken carcasses. Serologically identified *E. coli* from the examined chicken samples were recorded as (EHEC) O_{91}: H_{21} and O_{125}: $H_{21,}$ (EPEC) $O_{78,}$ $O_{142,}$ O_{26}: H_{11} and O_{114}: H_4 and (ETEC) O_{126}: H_2 and O_{128}: H_2. The antimicrobial susceptibility test revealed that O_{91}: H_{21} was resistant to all antimicrobials used in the study. Thereby, this study aimed to isolate lytic phage designated as øHA1infecting multidrug resistant *E. coli* was isolated from sewage samples collected in Zagazig, Egypt. Bacteriophage was isolated by a single plaque isolation. Morphological analysis by transmission electron microscopy revealed that phage belong to the myoviridae family and resembles typical T4- like phage. In this study, the øHA1 phage was heat stable and remained active after exposure to a temperature of 80°C for 10 minutes. The phage infectivity was maintained when incubated at a pH range between 4 and 11. However, it could not be detected in pH less than4 and more than 11.

Keywords: Chicken– Bacteriophage - *E. coli* – Coliforms.

Evaluation of the Lactobacillus rhamnosus inhibitory effect over Staphylococcus aureus isolated from raw milk.

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Abstract

Fifty raw cow's milk samples were collected randomly and a septically from dairy farms and dairy shops in Saharkia governorate, Egypt. Staphylococci were isolated from all the examined milk samples (100%). The mean counts of Staphylococci in dairy farm and dairy shops milk was 7.04×10^5 and 7.64×10^5, respectively. Of the isolated Staphylococci, *S. aureus was isolated* from 13 (52.00%) and 19 (76.00%) dairy farm and dairy shops milk samples, respectively. In-vitro inhibitory effect of Lactobacillus rhamnosus acidified and neutralized supernata against known populations of Staphylococcus aureus was evaluated. The mean of the inhibition zone diameters was 7.8mm, 5.7mm and 11.5mm of acidified, neutralized supernata and positive control (Ampicillin), respectively. It was concluded that raw milk containing high counts of *Staph. aureus* and constitute a health hazard to consumers. There is also antagonic effect of *L.* rhamnosus cultures over potentially pathogenic *Staph. aureus.*

Keywords: Raw milk– *Lactobacillus rhamnosus* - *Dairy farms – Staph. aureus*.

Use of Myoviridae phage for controlling *Pseudomonas aeruginosa* isolated from marketed fish and human

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Abstract:

Pseudomonas aeruginosa causes fish spoilage, nosocomial infections, skin infections and food poisoning in humans. This study was aimed to characterize and investigate efficacy of a lytic phage on the infectivity of multidrug resistant (MDR) *P. aeruginosa* isolates from fish and human. One hundred and fifty freshwater fish (Nile *Tilapia* and African catfish, 75 each); 40 skin swabs from fish sellers and 60 stool swabs from diarrheic children were cultured on *Pseudomonas* cetrimide nalidixic acid agar. The incidence of *P. aeruginosa* was 14.7% (11/75) in *Tilapia nilotica*; 12% (9/75) in *Clarias gariepinus*; 5% (2/40) in fish sellers and 6.7% (4/60) in children. Testing the susceptibility of 26 *P. aeruginosa* to nine antibiotics by disc diffusion method, only eight isolates revealed MDR. The phage was isolated from sewage water by spot test, then was propagated by a single plaque assay.The host range of phage was determined to eight MDR *P. aeruginosa* strains and other bacteria. The phage ϕPSF belonged to family Myoviridae and produced lysis to six MDR *P. aeruginosa* strains. The genome size of ϕPSF reached nearly75 kb by digestion with restriction enzymes EcoR1 &Hind III. The phage ϕPSF treatment prevented the growth of two *P. aeruginosa* isolates from fish and children after 18 hrs with a multiplicity of infection (MOI) of 1. This study proved that Myoviridae phage poses a high potential effect to control *P. aeruginosa* infection.

Keywords: *Pseudomonas aeruginosa* – Fish – Children – Antibiotic - Myoviridae phage.

Isolation of bacteriophage as potential biocontrol agent of various *E.coli* serotypes

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Abstract

This study was to investigate the prevalence and serotypes of *E.coli* in various sources including waste water treatment plants, drinking water treatment plant, slaughter houses waste water, cattle and buffaloes faeces and poultry litter. Samples were collected from El Sinbellaween, Diarb Negm and Al qanayat cities located in Dakahlia and Sharkia provinces, Egypt. *E.coli* was recovered from 109 (64.5%) out of 169 examined samples. The highest prevalence was recorded in waste water treatment plants (31/45, 69%). The lowest value was detected in drinking water (2/9) with the percentage of 22%. Serotyping of recovered isolates clarified 14 different *E.coli* serotypes compressing (O1 ,O6 ,O8 ,O15 ,O18 ,O26 ,O78,O111,O125,O126,O144, O146 ,O157 and O167).The study investigated the effect of a lytic bacteriophages on growth of the isolated serotypes of *E .coli* . Examination of waste water revealed isolation of 2 lytic phages. Characterization of the isolated phages Ø HM1 and Ø HM2 was conducted by examination of the stability of the isolated phages against different ranges of pH, temperature and effect of organic solvents as chloroform. Phage susceptibility was determined by spot test to 14 *E.coli* serotypes. The isolated phages could be used as a biocontrol for some serotypes of *E.coli* as Ø HM1was effective against O157 and O111while, Ø HM2was effective against O6.

Keywords*:* Biocontrol – Bacteriophage – *E.coli* – waste water.

Incidence and public health importance of anisakid larvae in marine *Atherina* and sardine

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Abstract:

Anisakiasis is a food-borne infection caused by *Anisakias* larvae that infect marine fish and induces gastrointestinal symtoms and anaphylactic shock in humans. Samples of marine fish (marine *Atherina*; n=100) and sardine (*Sardinella aurita*; n=50) were collected from fish markets at Diarb-Negm, Sharkia Province, and then examined microscopically by muscle compression technique and artificial digestion method. The incidence of anisakid larvae L_3 in *Atherina* fish was 29% (29 out of 100). Marine *Atherina* fish was infected with anisakid larvae L_3 with percentages of 17%, 10%, 2% and 0% in muscles, viscera, both viscera &muscles; and gills, respectively. Also, the overall infection rate of sardine fish with anisakid larvae L_3 was 6% (3 out of 50). In the study, sardine fish showed all infection with anisakid larvae L_3 in the viscera only with an incidence of 6%, but muscles and gills were free from any infection. Therefore, marine *Atherina* and sardine fish constitute a public health hazard and could cause anisakiasis in humans if consumed improperly cooked fish. So, this study pays an attention on the adequate preparation and processing of *Atherina* and sardine to prevent anisakid infections.

Keywords: Anisakid larvae – Atherina – Sardine – Muscles – Visera and Public health.

Staphylococcus aureus and methicillin-resistant *Staphylococcus aureus* contamination in raw meat products and meat handlers in Port Said city

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Abstract

Background: *Staphylococcus aureus* is a renowned human pathogen. It has been embroiled in foodborne intoxication outbreaks worldwide. In the meantime, the emergence of methicillin resistant *Staphylococcus aureus* (MRSA) which is resistant to beta-lactam antibiotics and has been recently isolated from most food producing animals and their products has attracted the public health attention to this microorganism.

Aim: Owing to the dearth of information about the existence of MRSA in raw meat products in Port Said city. This study was undertaken to assess the role of raw meat products as well as meat handlers as a source of MRSA contamination.

Materials and Methods: A total of 60 raw meat product samples; 20 from each of sausage, burger and minced meat in addition to, 40 meat handlers' hand swabs were collected randomly from different meat outlets and cultured on Baird Parker agar and CHROMagar MRSA. The suspect strains were further characterized by biochemical typing, antibiotic susceptibility and PCR for a detection of *nuc* and *mecA* genes specific for *Staphylococcus aureus* and MRSA, respectively.

Results: Screening of isolates on Baird Parker agar and CHROMagar MRSA, revealed that (60% and 25 %) of sausage, (90% and 25%) of burger, (75% and 40%) of minced meat and (100% and 40%) of human hand swab samples were contaminated by coagulase positive *Staphylococcus aureus* and MRSA, respectively. The mean counts expressed as ($\log_{10}$ cfu.g^{-1}) of coagulase positive *Staphylococcus aureus* and MRSA colonies were (1.52 and 0.62), (3.0689 and0.87) and (3.0689 and 1.47) in the examined raw meat products (sausage, burger and minced meat), respectively. Regarding, meat handlers' hand swabs, the mean counts of coagulase positive *Staphylococcus aureus* and MRSA colonies expressed as ($\log_{10}$ cfu.cm^{-2}) was (1.72 and 0.469) respectively. Another noteworthy point is that 15% (3/20), 25% (5/20), 30% (6/20) of raw sausage, burger and minced meat samples had exceeded the legal permissible limit (<100 cfu.g^{-1}) as per the standards of The Egyptian Organization for Standardization and Quality (EOS). With respect to human samples, 20 % (8/40) of examined samples had exceeded the legal permissible limit (<100 cfu.cm^{-2}). Furthermore, PCR results showed that all the isolates that were classified as MRSA on CHROMagar amplified 310 bp and 395 bp products specific for *mecA* gene and *nuc* gene, respectively. Results of the disk diffusion test revealed that all MRSA isolates (N= 52) were resistant to penicillin and oxacillin. On the other hand, a high sensitivity rate was recorded against linezolid (96.2%), vancomycin (92.3%) and ciprofloxacin (86.5%). The least sensitivity rates for MRSA isolates were as follows: Trimethoprim-sulphamethazole (13.5%), erythromycin (13.5%), clindamycin (19.2%), gentamycin (25%) and amikacin (44.3%). The recovered MRSA isolates were organized into 9 phenotypic patterns according to their antibiogram susceptibility pattern. The Multiple Antibiotic Resistance (MAR) index of these patterns ranged between (0.2 to 0.9).

Conclusion: The examined raw meat products and food handlers' samples were contaminated with MRSA. For this reason, the corresponding authorities should adopt regular inspection, reassessment of the manufacturing of meat products and training of food handlers to improve their hygiene and decrease levels of contamination.

Keywords: *Staph. aureus* – Methicillin-resistant – Meat handlers.