RICERCHE EFFETTUATE

IGIENE DEGLI ALIMENTI AD USO UMANO

Alpigiani I, Bacci C, Keeling LJ, Salman MD, Brindani F, Pongolini°S, Hitchens PL, Bonardi S

The associations between animal-based welfare measures and the presence of indicators of food safety in finishing pigs

Anim Welf. - Vol. 25 (2016). - p 355-363. - 30 bib ref [Nr. Estr. 7402]

Stressful housing and management practices affect animals, potentially increasing their receptiveness to pathogens. Since some pathogens do not lead to clinical signs of sickness, subclinical pigs could enter the food-chain, contaminating carcases and offal at slaughter, representing a threat to human health. Here, we assess the feasibility of a new approach (using animal-based welfare outcomes) to investigate the association between the animal welfare status of finishing pigs on-farm and the occurrence of Yersinia enterocolitica and Salmonella enterica in slaughtered pigs in Northern Italy. Thirty batches of finishing pigs were assessed for animal-, resource- and management-based measures according to the Welfare Quality® protocol for pigs on-farm and at slaughter. A sample of five individuals per batch was tested for Y. enterocolitica and S. enterica in tonsils and in mesenteric lymph nodes, respectively, and gross pathological changes were recorded. Environmental faecal samples per batch on-farm were tested for the same pathogens. Univariable logistic regression models were used to investigate the association between batches of pigs that were positive to Y. enterocolitica and S. enterica and indicators of poor welfare. The animal-based measures of welfare, greater on-farm mortality and poor human-animal relationship, were found to be associated with Y. enterocolitica. This study provides a good indication of the validity of this approach, but there is a need for larger-scale studies in the future to confirm the magnitude of the associations between these animal welfare and food safety indicators.

Angelone°B, Gasparini°M, Ferretti°E

Polycyclic aromatic hydrocarbons in fatty food using HRGC-HRMS : FAPAS results

Organohalogen Compd. - Vol. 78 (2016). - p 959-962. - 8 bib ref [Nr. Estr. 7339]

International Symposium on Halogenated Persistent Organic Pollutants (36th : Firenze : August 28th-September 2nd 2016)

Polycyclic Aromatic Hydrocarbons (PAHs) are a large group of molecules, about 6601, containing two or more condensed aromatic rings. They are produced by incomplete combustion of organic matter or released into the environment by industrial processes2. Toxicological studies confirmed the carcinogenicity of some PAHs3. Their lipophilic properties cause accumulation in adipose tissue and their hydrolysed derivatives are able to bind to the DNA resulting in genetic mutation processes4. To ensure public health, the European Commission regulated some of these molecules and defined indicators for the presence of PAHs in food: standard methods for food sampling and analysis are established in Reg. (EU) 333/20075 and maximum limits for Benzo (a) Pyrene and the sum of 4 PAHs (Benzo (a) Pyrene, Benzo (a) Anthracene, Benzo (b) Fluoranthene and Chrysene) are set in Reg. (EU) 1881/20066. Recently, Póhlmann et al. (2013) introduced the use of gas chromatography coupled to high resolution mass spectrometry to selectively detect PAHs in smoked meats and in traditional products from north east Europe'. The use of a very selective mass spectrometric detection method, associated to a stereo-specific chromatographic system, allows unique identification of PAHs. The aim of this work was to develop an analytical method suitable to quantify 9 polycyclic aromatic hydrocarbons (Figure 1) in different fatty foods, both of animai and vegetable origin, using extraction and purification procedures able to isolate the molecules of interest from interfering substances and selective instrumental method to separate different structural isomers, according with performance criteria indicated by the current regulations. Materials and methods Before the analysis, all matrices, except vegetable oils, were homogenized and freeze-dried. Food samples (1-2 g of powder) were mixed with diatomaceous earth and spiked with a mixture of

2H-labeled PAHs. The extraction was performed with Accelerated Solvent Extractor (ASE), samples were subjected to two extraction cycles at 100℃ an d 1500 psi using n-Hexane. The solvent was filtered through anhydrous sodium sulfate and concentrated to 0.5 ml in a TurboVap evaporator at 35℃ with a gentle stream of Nitrogen. The lipid fr action was solubilized with ethyl acetate/cyclohexane solution (1:1, v:v) to a volume of 10 ml and injected in a GPC system (Gel Permeation Chromatography). The vegetable oil sample was directly injected into the GPC system. The purification program provided a flow of 5 ml/min with a mixture of ethyl acetate/cyclohexane (1:1, v:v), the collection fractión ranged from 32 to 65 minutes. The sample was concentrated to 0.5 mi in a TurboVap evaporator. The second purification step provided a filtration on a pre-packed silica column, conditioned with 3 mi of cyclohexane. The column was washed with I O ml of cyclohexane and the filtrated was evaporated to dryness in a TurboVap evaporator. PAHs fraction was dissolved in 50 p.1 of 13C-labeled US EPA 16 PAH Cocktail solution. Instrumental analysis of food samples was carried out with TRAGE GC ULTRA gas chromatographs coupled with DFS high resolution magnetic scan system (Thermo Fisher Scientific, USA). Chromatographic separation was performed using PAHs Select Agilent Technologies capillary column (10 m x 0,15 mm x 0,10 puri). Results and discussions The oven program and the column used led to a great chromatographic separation of criticai pairs and triplets. Figure 2 shows the separation between Benzo [b] Fluoranthene, Benzo [k] Fluoranthene Benzo [j] Fluoranthene in the processed milk sample, often not solved with less selective columns. Complete validation studies were conducted on matrices sampled in the majority from routine analysis, such as vegetable oils and milk. For these products, parameters required by the legislation were studied, such as linearity, specificity, repeatability, reproducibility, limit of detection (LOD) and limit of quantitation (LOQ), processing fortified samples with a mixture of native to the interesting levels. According to the ISO/IEC/170258, measurement uncertainty was also estimated with the Bottom-up approach, taking into account the parameters that most affected the analytical determination. Furthermore, the method was tested on other matrices of interest using materials belonging to FAPAS circuits with already known results. The applicability of the method was evaluated studying the repeatability and accuracy on different types of matrices. Through reports of results, z-scores were calculated using the following formula (Figure 3): The results obtained are reported in Figure 4 and Table 2. The validation study confirmed that the developed analytical method is applicable to different types of matrices. The excellent chromatographic separation through highly selective column and the identification given by a high-resolution detection system, allowed an unequivocal determination of critical pairs and triplets. The use of isotope dilution and response factors led to an independent quantification from different matrix effects.

Azwai SM, Alfallani EA, Abolghait SK, Garbaj AM, Naas HT, Moawad AA, Gammoudi FT, Rayes HM, Barbieri°I, Eldaghayes IM

Isolation and molecular identification of Vibrio spp. by sequencing of 16S rDNA from seafood, meat and meat products in Libya

Open Vet J. - Vol. 6 no 1 (2016). - p 36-43. - 41 bib ref [Nr. Estr. 7679]

The genus Vibrio includes several food-borne pathogens that cause a spectrum of clinical conditions including septicemia, cholera and milder forms of gastroenteritis. Several Vibrio spp. are commonly associated with food-borne transmission including Vibrio cholerae, Vibrio parahemolyticus, and Vibrio vulnificus. Microbiological analysis for enumeration and isolation of Vibrio spp. were carried out for a total of 93 samples of seafood, meat and meat products from different geographic localities in Libya (Tripoli, Regdalin, Janzour and Tobruk). Vibrio spp. were detected by conventional cultural and molecular method using PCR and sequencing of 16S rDNA. Out of the 93 cultured samples only 48 (51.6%) yielded colonies on Thiosulfate Citrate Bile Salt agar (TCBS) with culture characteristics of Vibrio spp. More than half (n=27) of processed seafood samples (n=46) yielded colonies on TCBS, while only 44.6% of samples of meat and meat products showed colonies on TCBS. Among cultured seafood samples, the highest bacterial count was recorded in clam with a count of 3.8 104 CFU¥g. Chicken burger samples showed the highest bacterial count with 6.5 104 CFU¥g. Molecular analysis of the isolates obtained in this study, showed that 11 samples out of 48 (22.9%) were Vibrio spp. Vibrio parahemolyticus was isolated from camel meat for the first time. This study is an initial step to provide a baseline for future molecular research targeting Vibrio spp. foodborne illnesses. This data will be used to provide information on the magnitude of such pathogens in Libyan seafood,

meat and meat products.

Barbuti S, Dalzini° E, Frustoli MA, Cosciani_Cunico ° E, Grisenti MS, Daminelli° P

Listeria monocytogenes on cured meat products : a case study on Speck (a typical Italian smoked ham) regarding to EC Regulation 2073/2005 requirements

SDRP J Food Sci Technol. - Vol. 1 no 3 (2016). - 8 p. - 33 bib ref [Nr. Estr. 7255]

Ready To Eat (RTE) meat products may be able to support the growth of Listeria monocytogenes during their shelf life. In agreement with the European Commission (EC) Regulation N. 2073/2005 on microbiological criteria for foodstuff, the products with pH = 4.4 or aw = 0.92, those with pH = 5.0 and aw = 0.94 and those with a shelf-life of less than five days are automatically included in the category of RTE foods that doesn't able to support the growth of L. monocytogenes. Otherwise, the manufacturers must demonstrate whether their products not allow the growth of L. monocytogenes by use of different approaches based on: i) physicalchemical analyses of product, ii) predictive microbiology and iii) Microbial Challenge Test (MCT), as suggested by EC Regulation 2073/2005. The present study evaluated the three above mentioned approaches on Speck, a traditional smoked dry cured ham produced in South Tyrol (Italy). Both the variability of the physical-chemical properties of Speck (aw ranging from 0.890 to 0.940 and pH from 5.37 to 6.24) and the use of prediction models did not allow to state whether the product supports the growth of the pathogen and a reliable classification of the product. On the contrary, the MCT carried out showed the L. monocytogenes inactivation during shelf life of sliced vacuum-packed or modified atmosphere-packed Speck stored at different temperatures 4°, 8° and 20°C..

Bernini V, Dalzini° E, Lazzi C, Bottari B, Gatti M, Neviani E

Cutting procedures might be responsible for Listeria monocytogenes contamination of foods : the case of Gorgonzola cheese

Food Control. - Vol. 61 (2016). - p 54-61. - 29 bib ref [Nr. Estr. 7068]

Commission Regulation (EC) No. 2073/2005 established, as a food safety criterion for tolerable levels of Listeria monocytogenes in ready-to-eat foods which do not support the growth of the pathogen or with shelf life below 5 days, a maximum of 100 cfu g_1. Blue-veined cheeses are among these foods because their rinds can be contaminated, and the pathogen can be transferred to the paste during slicing. The aim of this research was to investigate whether cutting procedures could be responsible for cheese paste contamination. Considering that the Commission Regulation limit is allowed when the pathogen does not grow during the shelf life, we also wanted to verify whether, in the case of positive dragging, L. monocytogenes was able to grow on cut slices beyond the limit imposed, thereby becoming a risk for consumers during storage at 4 _C. Gorgonzola cheese was chosen for this investigation. The cutting simulation on artificially inoculated wheel rinds indicated that greater rind contamination corresponded to a higher percentage of contaminated paste samples. The growth of L. monocytogenes transferred to cut slices was variable relative to the physicochemical characteristics of the cheese, to the contamination level and to the time of storage. In particular, the sweet typology was able to support the growth of L. monocytogenes in the shelf life conditions considered and the quick overcoming of the limit imposed by food safety criteria would not ensure the safety for consumption.

Bertasi° B, Galuppini° E, Meletti° F, Mangeri° L, P avoni° E, Losio° MN

Valutazione dell'applicabilita del metodo ISO/TS 15216-2:2013 per la determinazione del virus dell'epatite A (HAV) in matrici alimentari complesse

XVII Congresso Nazionale SIDiLV : Pacengo di Lazise (VR), 28-30 Settembre 2016 : volume degli atti / [s.l. : Societa' Italiana Diagnostica di Laboratorio Veterinaria (SIDiLV), 2016]. - p 262-263. - 2 bib ref [Nr. Estr. 7374]

Congresso Nazionale Societa' Italiana di Diagnostica di Laboratorio Veterinaria (SIDiLV) (17. : Pacengo di Lazise (VR) : 28-30 Settembre 2016)

The ISO/TS 15216-2:2013 is specific for the qualitative detection of hepatitis A virus in leafy vegetables, berries, mussels and water. However, most of the matrices involved in foodborne outbreaks do not belong to these food categories, but are cooked meals or compound aliments that are mainly contaminated by food handlers. The aim of this work was to combine a specific sample preparation procedure of artificially HAV and Mengo virus-contaminated matrices with 150'5 described extraction and One step RT-PCR, to evaluate the recovery rate. Preliminary data confirmed that compound aliments revealed to be more difficult to analyze than the ISO's food categories, even If new trials must be implemented to set up a more sensible and specific method.

Bertasi°B, Losio°MN, Daminelli°P, Finazzi°G, Se rraino A, Piva S, Giacometti A, Massella E, Ostanello F

Seasonal variability of thermophilic Campylobacter spp. in raw milk sold by automatic vending machines in Lombardy Region

Ital J Food Safety. - Vol. 5 (2016). - no 5848 (p 131-133). - 30 bib ref [Nr. Estr. 7433]

In temperate climates, a seasonal trend was observed in the incidence of human campylobacteriosis cases, with peaks reported in spring and autumn in some countries, or in summer in others; a similar trend was observed in Campylobacter spp. dairy cattle faecal shedding, suggesting that cattle may play a role in the seasonal peak of human infection. The objectives of this study were to assess if a seasonal trend in thermophilic Campylobacter spp. contamination of raw milk exists and to evaluate a possible relation between this and the increase of human campylobacteriosis incidence in summer months. The results showed a mean prevalence of 1.6% of milk samples positive for ther mophilic Campylobacter spp. with a wide range (0.0-3.1%) in different months during the three years considered. The statistical analysis showed a significant difference (P<0.01) of the prevalence of positive samples for then mophilic Campylobacter spp. between warmer and cooler months (2.3 vs 0.6%). The evidence of a seasonal trend in thermophilic Campylobacter spp. contamination of raw milk sold for direct consumption, with an increase of the prevalence in warmer months, may represent one of the possible links between seasonal trend in cattle faecal shedding and seasonal trend in human campylobacteriosis.

Bertasi°B, Tilola°M, Delibato E, Anniballi F, De_ Santis P, Varcasia BM, Scaramagli S, Gottardo S, De_Medici D, Losio°MN

Identificazione di specie in alimenti : sviluppo di metodiche molecolari qualitative e quantitative

XVII Congresso Nazionale SIDiLV : Pacengo di Lazise (VR), 28-30 Settembre 2016 : volume degli atti / [s.l. : Societa' Italiana Diagnostica di Laboratorio Veterinaria (SIDiLV), 2016]. - p 69-70. - 2 bib ref [Nr. Estr. 7362]

Congresso Nazionale Societa' Italiana Diagnostica di Laboratorio Veterinaria (SIDiLV) (17. : Pacengo di Lazise (VR) : 28-30 Settembre 2016)

Controls to avoid frauds are becoming very important In recently years. To dlstinguish accidental or voluntary contaminations, quanti¬tative or qualitative cut-off methods are needed, based respectively on genomic and mitochondrial targets. Real-time PCR as screening coupled to digital PCR as quantification system could represent the best application of DNA a mplification methods to detect not declared materials.

Bion C, Henzelin AB, Qu Y, Pizzocri G, Bolzoni°G, Buffoli°E

Analysis of 27 antibiotic residues in raw cow's milk and milk-based products – validation of Delvotest® T

Food Addit Contam Part A. - Vol. 33 no 1 (2016). - p 54-59. - 7 bib ref (ultimo controllo - 14/12/2015 http://www.tandfonline.com/doi/full/10.1080/19440049.2015.1104731) [Nr. Estr. 7141]

Delvotest® T was evaluated for its capability at detecting residues of 27 antibiotics in raw cow's milk and in some dairy ingredients (skimmed and full-cream milk powders). The kit was used as a screening tool for the qualitative determination of antibiotics from different families in a single test. Results delivered by such a method are expressed as 'positive' or 'negative', referring to the claimed screening target concentration (STC). Validation was conducted according to the European Community Reference Laboratories' (CRLs) residues guidelines of 20 January 2010 and performed by two laboratories, one located in Europe and the other in Asia. Five criteria were evaluated including detection capability at STC, false-positive (FP) rate, false-negative (FN) rate, robustness and cross-reactivity using visual reading and Delvoscan®. STCs were set at or below the corresponding maximum residue limit (MRL), as fixed by European Regulation EC No. 37/2010. Four antibiotics (nafcillin, oxytetracycline, tetracycline and rifaximin) out of 27 had a false-negative rate ranging from 1.7% to 4.9%; however, it was still compliant with the CRLs' requirements. Globally, Delvotest T can be recommended for the analysis of the surveyed antibiotics in raw cow's milk, skimmed and full-cream milk powders. Additional compounds were tested such as sulfamethazine, spiramycin and erythromycin; however, detection at the corresponding MRL was not achievable and these compounds were removed from the validation. Other drugs from the sulfonamide, aminoglycoside or macrolide families not detected by the test at the MRL were not evaluated in this study. Regarding the reliability of this rapid test to milk-based preparations, additional experiments should be performed on a larger range of compounds and samples to validate the Delvotest T in such matrices.

Bolzoni°G, Baiguera°C, Buffoli°E

I valori di composizione del 75% del prodotto italiano

Inf Zootec. - Vol. 63 no 21 (2016). - p 54-58 [Nr. Estr. 7503]

Bolzoni°G, Baiguera°C, Zanardi°G, Buffoli°E

Istantanea sulla qualità del latte : la caratterizzazione della qualità del latte italiano : un primo passo verso un obiettivo ancora lontano ma raggiungibile

Latte. - Vol. 90 no 3 (2016). - p 16-19 [Nr. Estr. 7487]

Bolzoni°G, Buffoli°E, Zanardi°G

Cambiamenti climatici il "termometro" del grasso

Inf Zootec. - Vol. 63 no 21 (2016). - p 48-52 [Nr. Estr. 7504]

Bonardi S, Alpigiani I, Bruini I, Barilli E, Brindani F, Morganti°M, Cavallini P, Bolzoni°L, Pongolini°S

Detection of Salmonella enterica in pigs at slaughter and comparison with human isolates in Italy

Int J Food Microbiol. - Vol. 218 (2016). - p 44-50. - 40 bib ref [Nr. Estr. 7121]

In 2013–2014, 201 pigs belonging to 67 batches were tested for Salmonella in their mesenteric lymph nodes (MLN) in one abattoir of Northern Italy. For each batch, faecal material was collected at lairage by swabbing the pen floor for approximately 1600 cm2. The aim of this study was to investigate the prevalence of Salmonella in MLN of pigs at slaughter, to assess Salmonella contamination at lairage and to evaluate the effect of lairage duration on its prevalence. Serotyping, XbaI PFGE typing and antimicrobial testing of the isolates were performed. Pig and human Salmonella isolates of the same region of Italy were compared to evaluate possible correlations. Salmonella enterica was isolated from 19.9% of the MLN and 49.3% of the environmental faecal samples. Nine different serovars were identified among 75 S. enterica isolates. In MLN Salmonella Derby was the most common (52.5%), followed by S. enterica 4,[5],12:i:- (17.5%) and Salmonella Rissen (10.0%). In faecal samples S. Derby was prevalent (51.4%), followed by S. enterica 4,[5], 12:i:- (20.0%) and Salmonella Brandenburg (14.3%). Lairage holding varied between 1 and =12 h (median value: 2.5 h). In pigs held for 1–3 h, 14.1% were positive for Salmonella inMLN but the prevalence reached 31.8% when they were held for =12 h. The contamination of MLN was statistically different (p=0.0045) between the two groups, thus confirming the role of long-lasting lairage in Salmonella contamination of pigs. XbaI PFGE typing detected 36 PFGE types. Twenty-three PFGE types were identified among the 40 MLN isolates and 22 PFGE types among the 35 faecal isolates. A total of 11 PFGE types were shared between the MLN of pigs and the lairage environment. Among S. Derby, 6 shared PFGE types between MLN and faeces were found and among S. enterica 4,[5],12:i:- one PFGE type was common between MLN and the faecal samples. Shared profiles between human and swine isolates of S. Derby, S. enterica 4,[5],12:i:-, S. Rissen, Salmonella Manhattan, S. Brandenburg, Salmonella Livingstone, Salmonella London and Salmonella Muenchen were identified. Among S. Derby and S. enterica 4,[5],12:i:- isolates found in pigs, 6/15 profiles (40.0%) and 8/10 (80.0%) were shared with human isolates. High resistance rates to streptomycin (97.3%), sulphonamide compounds (84.0%) and tetracycline (56.0%) were observed. No resistance was detected to ertapenem and meropenem. High proportions of isolates showed intermediate sensitivity to ciprofloxacin (85.3%) and cefotaxime (66.7%). High sensitivity rates were found to chloramphenicol (96.0%) and trimethoprim/sulfamethoxazole (81.3%).

Bonardi S, Bruini I, Alpigiani I, Vismarra A, Barilli E, Brindani F, Morganti° M, Bellotti° P, Bolzoni° L, Pongolini° S

Influence of pigskin on Salmonella contamination of pig carcasses and cutting lines in an Italian slaughterhouse

Ital J Food Safety. - Vol. 5 (2016). - no 5654 (p 65-68). - 24 bib ref [Nr. Estr. 7292]

Ninety pig carcasses and twenty one food contact surfaces (FCSs) were tested for Salmonella in a slaughterhouse processing ca. 380 pigs/h between 2014-2015. Sampling was performed during seven sessions. Four carcass sites of 100 cm2 each (back, belly, jowl externally, and the diaphragmatic area internally) were swabbed after evisceration. Meat conveyors and dressing tables were tested swabbing areas of 200 to 400 cm2 . After pre-enrichment in buffered peptone water, samples were tested by Salmonella MDS® assay and the presumptive positives were confirmed by the ISO 6579 method. Salmonella isolates were serotyped following the KauffmanWhite-Le Minor scheme and genotyped by XbaI pulsed field gel electrophoresis. Salmonella was isolated from 16/90 [17.8%; confidence interval (CI) 95%=11.2-26.9] carcasses and 4/21 (19.0%; CI 95%=7.7-40.0) FCSs. Four serovars were identified on carcasses. S. enterica 4,[5],12:i:- was the most prevalent (43.75%), followed by S. Rissen (31.25%), S. Derby (12.5%) and S. Bovismorbificans (12.5%). Two serovars were found on FCSs, namely S. Derby (75%) and S. Livingstone (25%). During one sampling session, a failure in carcass dehairing occurred and caused significantly higher prevalence of carcass contamination (60%) than in the remaining sessions. Moreover, in the same session, Salmonella prevalence was marginally significantly higher on FCSs than in the remaining sampling days, suggesting that dehairing affects contamination not only on carcasses, but also on the working surfaces.

Bonardi S, Bruini I, D'Incau°M, Van_Damme I, Carni el E, Brémont S, Cavallini P, Tagliabue°S, Brindani F

Detection, seroprevalence and antimicrobial resistance of Yersinia enterocolitica and Yersinia pseudotuberculosis in pig tonsils in Northern Italy

Int J Food Microbiol. - Vol. 235 (2016). - p 125-132. - 74 bib ref [Nr. Estr. 7350]

Yersiniosis is the third most common reported zoonoses in Europe, with Y. enterocolitica and Y. pseudotuberculosis responsible for 98.66% and 0.94% of the confirmed human cases in 2013. From June 2013 to October 2014, 201 pigs at slaughter belonging to 67 batches were tested for Y. enterocolitica and Y. pseudotuberculosis in tonsils. Diaphragm muscle samples were tested for antibodies against Yersinia by a commercially available ELISA test. Y. enterocolitica 4/O:3 was detected in 55/201 pig tonsils (27.4%; 95% CI 23.1–37.1). The positive pigs came from 38/67 batches (56.7%) and were reared in 36/61 farms (59.0%). There was no statistical difference between farrow- to-finish and finishing farms. The mean count of Y. enterocolitica was 3.56 ± 0.85 log10 CFU/g with a minimum of 2.0 log10 CFU/g and a maximum of 4.78 log10 CFU/g. Y. pseudotuberculosis was isolated from 4/201 pig tonsils (2.0%; 95% CI 0.0–4.5). Three isolates belonged to serotype O:3 and one to serotype O:1. The positive pigs belonged to 4/67 batches (6.0%) and came fromfinishing farms only. Y. pseudotuberculosis could be enumerated in one sample only (4.27 log10 CFU/g). The ELISA test demonstrated that 56.1% of the meat juice samples were positive for Yersinia antibodies. Serological positivity was found in 67.9% (36/53) of the Y. enterocolitica- and 75.0% (3/4) of the Y. pseudotuberculosis positive pigs. A significant association was found between serological results and the presence of Y. enterocolitica in tonsils (OR = 1.97, p=0.044). All the Y. enterocolitica 4/O:3 isolates were susceptible to amoxicillin-clavulanic acid, gentamicin, ceftazidime, ertapenem and meropenem, 94.5% to cefotaxime, 89.1% to kanamycin and 78.2% to tetracycline. The highest resistance rates were observed for ampicillin (100%), sulphonamides (98.2%) and streptomycin (78.2%). Y. pseudotuberculosis strains were sensitive to all the antimicrobials tested, i.e. amoxicillin, amoxicillin/clavulanic acid, azithromycin, cephalothin, cefoxitin, ceftriaxone, ciprofloxacin, nalidixic acid, sulphonamide, tetracycline and ticarcillin. The study shows that Italian fattening pigs are frequently infected with human pathogenic Y. enterocolitica 4/O:3. Although the isolation rate is slightly lower than in other European countries, the serological test demonstrates that the infection is widespread among pig population. In fact, seroprevalence is similar to other EU countries. The detection of Y. pseudotuberculosis serotypes O:1 and O:3 in pig tonsils is of concern. Since tonsils may represent a contamination source for pig meat at slaughter, further studies regarding human infections by both microbial species are strongly recommended.

Bonilauri°P, Bardasi°L, Leonelli°L, Ramini°M, L uppi°A, Giacometti F, Merialdi°G

Detection of food hazards in foods : comparison of real time polymerase chain reaction and cultural methods

Ital J Food Safety. - Vol. 5 no 1 (2016). - no 5641 (p 37-40). - 29 bib ref (ultimo accesso 10/06/2016 http://www.pagepressjournals.org/index.php/ijfs/article/view/ijfs.2016.5641) [Nr. Estr. 7265]

Foodstuffs should not contain microorganisms or their toxins or metabolites in quantities suggesting an unacceptable risk for human health. The detection of food hazards in foods is performed by several tests that produce results dependent on the analytical method used: an analytical reference method, defined as standard, is associated with each microbiological criterion laid down in Regulation 2073/2005/EC, but, analytical methods other than the reference ones, in particular more rapid methods, could be used. Combined screening methods performed by real time-polymerase chain reaction (RT-PCR) are currently validated as alternative methods according to the ISO 16140:2003 and certified by the Association Française de Normalisation. However, the positive results obtained with these alternative methods, the investigated molecular relations that resulted positive have to be confirmed with cultural methods using the same enrichment media in which the molecular screening was performed. Since it is necessary to assess if these testing schemes provide equivalent guarantees of food safety, the aim of this retrospective study is to analyse the data collected, from 2012 to 2014 by Emilia Romagna Region in the field of Piano Regionale Alimenti (Food Regional Plan) during official controls monitoring food samples of animal and other than animal origin. Records performed by combined methods of molecular screening of Salmonellaspp., Listeria monocytogenes and thermophilic Campylobacter and cultural confirmation results were gathered together and the results were compared in order to assess the sensitivity of the methods. A total of 10,604 food samples were considered in this study: the comparison of the data revealed that the RT-PCR method detected Salmonella, L. monocytogenes, and thermophilic Campylobacter in 2.18, 3.85 and 3.73% of the samples, respectively, whereas by using cultural method these pathogens were isolated in 0.43, 1.57 and 1.57% of samples, respectively. In spite of the use of the same enrichment broth, the RT-PCR method disclosed a percentage of positive samples that was negative to cultural examination ranging between 20 and 43%, with a PCR/culture ratio between 2.37 to 5.00. In conclusion, the results of this study pose a doubt about the sensitivity of the official cultural methods regarding the isolation of the three investigated foodborne pathogens. Moreover this study may be a useful tool for veterinary authorities to assess appropriate sampling plans to control the risk relating to the consumption of contaminated foods.

Bruni R, Taffon S, Equestre M, Chionne P, Madonna E, Rizzo C, Tosti ME, Alfonsi V, Ricotta L, De_Medici D, Di_Pasquale S, Scavia G, Pavoni°E, Losio°N, Romanò L, Zanetti AR, Morea A, Pacenti M, Palù G, Capobianchi MR, Chironna M, Pompa MG, Ciccaglione AR, Italian National Task Force on Hepatitis A

Key role of sequencing to trace hepatitis A viruses circulating in Italy during a large multi-country European foodborne outbreak in 2013

PLoS One. - Vol. 11 no 2 (2016). - p e0149642. (14 p). - 16 bib ref (ultimo accesso 23/06/2016 http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0149642) [Nr. Estr. 7218]

Background Foodborne Hepatitis A Virus (HAV) outbreaks are being recognized as an emerging public health problem in industrialized countries. In 2013 three foodborne HAV outbreaks occurred in Europe and one in USA. During the largest of the three European outbreaks, most cases occurred in Italy (>1,200 cases as of March 31, 2014). A national Task Force was established at the beginning of the outbreak by the Ministry of Health. Mixed frozen berries were early demonstrated to be the source of infection by the identity of viral sequences in patients and in food. In the present study the molecular characterization of HAV isolates from 355 Italian cases is reported. Methods Molecular characterization was carried out by PCR/sequencing (VP1/2A region), comparison with reference strains and phylogenetic analysis. Results A unique strain was responsible for most characterized cases (235/355, 66.1%). Molecular data had a key role in tracing this outbreak, allowing 110 out of the 235 outbreak cases (46.8%) to be recognized in absence of any other link. The data also showed background circulation of further unrelated strains, both autochthonous and travel related, whose sequence comparison highlighted minor outbreaks and small clusters, most of them unrecognized on the basis of epidemiological data. Phylogenetic analysis showed most isolates from travel related cases clustering with reference strains originating from the same geographical area of travel. Conclusions In conclusion, the study documents, in a real outbreak context, the crucial role of molecular analysis in investigating an old but re-emerging pathogen. Improving the molecular knowledge of HAV strains, both autochthonous and circulating in countries from which potentially contaminated foods are imported, will become increasingly important to control outbreaks by supporting trace back activities, aiming to identify the geographical source(s) of contaminated food, as well as public health interventions.

Cosciani_Cunico°E, Dalzini°E, Monastero°P, Damin elli°P, Losio°MN

A dynamic system to study the behaviour of Escherichia coli O157:H7 during the process of raw milk hard cheeses

Food Micro : 19-22 July 2016, Dublin, Ireland : abstracts book / [s.l. : s.n., 2016]. - p 519 [Nr. Estr.

7298]

Food Micro : Dublin, Ireland : 19-22 July 2016)

Rapid Alert System for Food and Feed (RASFF) reported several alerts belong to verotoxin producing E.coli in raw milk cheeses. Many studies linked fresh cheese to severe outbreaks. However, relatively little is known about the hard seasoned cheeses made by raw milk. The aim of the study is to follow the behavior of E. coli O157:H7 in a bio-reactor where pH and temperature change dynamically, but not simultaneously. In the bio-reactor were mimed the cooking of the curd and the pH decrease due to fermentation. Pathogen Log reductions were calculated. E. coli ATCC35150 was inoculated in his exponential phase in Brain Heart Infusion broth. Sartorius stedim Biostat bio-reactor was used in this study; 16 different inactivation curves were programmed. The set variables were different combinations of temperatures and pH. In particular, 4 maximum temperatures (55 ℃, 52℃,50℃, 48℃), 2 different temperature rates, to reach the maximum temperature from 10℃ (0.7℃/h, 1℃/h), 2 different pH rates, to reach pH 5.2 from pH 6.5 (0.19 pH/h, 0.26 pH/h). While the temperature changed, the pH remained constant and while the pH changed the temperature remained constant. Appropriate E.coli dilution was placed into the bio-reactor and samples were taken at defined intervals. Data shown that in the range of temperatures and pH considered, E. coli was reduced between 4.65 and 1.43 logCFU/ml. Interesting, a tail was present in each curve (excepted at 48 ℃ that was not visible) . This study can be used to better understand the behavior of E. coli 0157:H7 affected by pH decreasing and temperature increasing. Dynamic data can be used for further studies, such as the validation of predictive model in a dynamic environment and to help risk assessor, who judges the process of hard cheeses made by raw milk.

Cremonesi P, Cortimiglia C, Picozzi C, Minozzi G, Malvisi M, Luini°M, Castiglioni B

Development of a droplet digital polymerase chain reaction for rapid and simultaneous identification of common foodborne pathogens in soft cheese

Front Microbiol. - Vol. 7 (2016). - Article 1725 (10 p). - 22 bib ref [Nr. Estr. 7450]

Dairy products can harbor various microorganisms (e.g., Campylobacter spp., Salmonella spp., Listeria monocytogenes, verocytotoxin-producing Escherichia coli) arising from animal reservoirs, and which can become important sources of foodborne illness. Therefore, early detection of food pathogens is crucial to prevent diseases. We wished to develop an accurate quantitative protocol based on a droplet digital polymerase chain reaction (ddPCR) involving eight individual TaqManTM reactions to detect simultaneously, without selective enrichment, Listeria spp., L. monocytogenes, Salmonella spp., verocytotoxin-producing E. coli and Campylobacter spp. in cheese. ddPCR (a “third-generation PCR”) provides absolute quantification of target DNAs without requirement of a standard curve, which simplifies experimentation and data comparability. The accuracy, specificity and sensitivity of the developed ddPCR system were assessed using purified DNA from 50 reference pathogenic and non-pathogenic strains from international or Italian collections and analyzing soft cheese samples artificially contaminated with serial dilutions (from 4 × 106 to 4 × 101 CFU/g) of pure cultures from the American Type Culture Collection. Finally, the performance of our ddPCR system was compared by parallel testing with quantitative PCR: it gave higher sensitivity (102 CFU/g for the Listeria spp. assay) without the necessity of a standard curve. In conclusion, this is the first ddPCR system developed for simultaneous detection of common foodborne pathogens in cheese using a single set of amplification conditions. As such, it could become a useful strategy for high-throughput screening of microorganisms to evaluate the quality and safety of food products.

Crotta M, Paterlini°F, Rizzi R, Guitian J

Consumers’ behavior in quantitative microbial risk assessment for pathogens in raw milk : incorporation of the likelihood of consumption as a function of storage time and temperature

J Dairy Sci. - Vol. 99 (2016). - p 1029-1038. - 24 ref bib [Nr. Estr. 7385]

Foodborne disease as a result of raw milk consumption is an increasing concern in Western countries. Quantitative microbial risk assessment models have been used to estimate the risk of illness due to different pathogens in raw milk. In these models, the duration and temperature of storage before consumption have a critical influence in the final outcome of the simulations and are usually described and modeled as independent distributions in the consumer phase module. We hypothesize that this assumption can result in the computation, during simulations, of extreme scenarios that ultimately lead to an overestimation of the risk. In this study, a sensorial analysis was conducted to replicate consumers' behavior. The results of the analysis were used to establish, by means of a logistic model, the relationship between time–temperature combinations and the probability that a serving of raw milk is actually consumed. To assess our hypothesis, 2 recently published quantitative microbial risk assessment models quantifying the risks of listeriosis and salmonellosis related to the consumption of raw milk were implemented. First, the default settings described in the publications were kept; second, the likelihood of consumption as a function of the length and temperature of storage was included. When results were compared, the density of computed extreme scenarios decreased significantly in the modified model; consequently, the probability of illness and the expected number of cases per year also decreased. Reductions of 11.6 and 12.7% in the proportion of computed scenarios in which a contaminated milk serving was consumed were observed for the first and the second study, respectively. Our results confirm that overlooking the time–temperature dependency may yield to an important overestimation of the risk. Furthermore, we provide estimates of this dependency that could easily be implemented in future quantitative microbial risk assessment models of raw milk pathogens.

Crotta M, Rizzi R, Varisco°G, Daminelli°P, Coscia ni_Cunico°E, Luini°M, Graber HU, Paterlini°F, Guitian J

Multiple-strain approach and probabilistic modelling of consumer habits in quantitative microbial risk assesssment : a quantitative assessment of exposure to Staphylococcal enterotoxin A in raw milk

J Food Prot. - Vol. 79 no 3 (2016). - p 432-441. - 44 bib ref [Nr. Estr. 7256]

Quantitative microbial risk assessment (QMRA) models are extensively applied to inform management of a broad range of food safety risks. Inevitably, QMRA modeling involves an element of simplification of the biological process of interest. Two features that are frequently simplified or disregarded after pathogenicity of multiple strains of a single pathogen and consumer behavior at the household level. this study, we developed a QMRA model with a multiple-strain approach and a consumer phase module (CPM) based on uncertainty distributions fitted from field data. We modeled exposure to staphylococcal enterotoxin A in raw milk in Lombardy; a specific enterotoxin production module was thus included. The model is adaptable and could be used to assess the risk related to other pathogens in raw milk as well as other staphylococcal enterotoxins. The multiple-strain approach, implemented as a multinomial process, allowed the inclusion of variability and uncertainty with regard to pathogenicity at the bacterial level. Data from 301 questionnaires submitted to raw milk consumers were used to obtain uncertainty distributions for the CPM. The distributions were modeled to be easily updatable with further data or evidence. The sources of uncertainty due to the multiple-strain approach and the CPM were identified. and their impact on the output was assessed by comparing specífic scenarios to the baseline. When the distributions reflectíng the uncertainty in consumer behavior were fixed to the 95th percentile, the risk of exposure increased up to 160 times. This reflects the importance of taking into consideration the díversity consumers' habits al the household level and the impact that the lack of knowledge about variables in the CPIV1 can have on the final QMRA estimates. The multiple-strain approach lends itself to use in other food matrices besides raw milk and allows the model to better capture the complexity of the real world and to be capable of geographical specificity.

Dalipi R, Margui E, Borgese L, Bilo F, Zappa G, Zoani C, Sangiorgi°E, L. Depero E

TXRF analysis of vegetal foodstuff samples

2nd IMEKOFOODS : Metrology Promoting Objective and Measurable Food Quality & Safety : Benevento (Italy), October, 2nd-5th 2016 / [s.l. : s.n., 2016]. - p 44 - 10 bib ref [Nr. Estr. 7542]

IMEKOFOODS : Metrology Promoting Objective and Measurable Food Quality & Safety (2nd : Benevento (Italy) : October, 2nd-5th 2016)

In this work, a fast and simple analytical method has been developed for the multi elemental analysis of different vegetal foodstuff samples, by using a combination of two low power benchtop total reflection X-ray fluorescence (TXRF) systems. The suspension of the powdered samples in de-ionized water showed to be the most suitable way for the preparation and analysis of this kind of samples. However, for comparison purposes the samples were also acid digested and measured by TXRF.

Dalzini°E, Bernini V, Bertasi°B, Daminelli°P, Los io°MN, Varisco°G

Survey of prevalence and seasonal variability of Listeria monocytogenes in raw cow milk from Northern Italy

Food Control. - Vol. 66 (2016). - p 466-470. - 48 bib ref [Nr. Estr. 7102]

Listeria monocytogenes is an important food-borne pathogen causing meningitis, meningo-encephalitis and abortion. Both sporadic and epidemic human listeriosis cases are associated with the consumption of contaminated foods. To assess the potential risk to consumer health, the presence of L. monocytogenes was investigated using qualitative and quantitative methods in raw milk (bulk tank milk and milk for vending machine) collected from 2010 to 2013 in Northern Italy (Lombardy and Emilia- Romagna regions). Overall, L. monocytogenes was detected in 145 on 8716 of raw milk samples, with a prevalence of 1.66% (95% C.I. 1.4%e1.7%). The prevalence ranged from 0.52% (95% C.I. 0.3%e0.9%) in 2012 to 2.7% (95% C.I. 2.0%e3.8%) in 2013, but no trend of increase was observed in four-years of investigation. The pathogen was detected from 2.2% (95% C.I. 1.9%e2.6%) of bulk tank milk and from 0.5% (95% C.I. 0.3% e0.8%) of milk for vending machine. A significative difference ($p < 0.05$) of the prevalence data was observed between data collected in two different regions of Northern Italy with an higher prevalence in Lombardy. In addition to the geographical area, the L. monocytogenes presence was influenced also by the seasonal period of collection samples, with peaks in spring and autumn. These results confirm the raw milk can be a source of foodborne illness outbreaks if consumed without sanitizing treatments, but the low prevalence and the low contamination levels (more than 80% of the contaminated samples contained <10 cfu ml_l of L. monocytogenes) proving the hygienic quality of the milk produced in Northern Italy.

Dalzini°E, Galuppini°E; Merigo°D, Buizza°PF, Lo sio°MN, Bertasi°B, Varisco°G

Anti-Listeria activity of bioactive food packaging on artificially contaminated sliced cheese

J Food Process Preserv. - Vol. 40 (2016). - p 249-256. - 32 bib ref [Nr. Estr. 7266]

The aims of this study were to (1) study the optimal growth condition for two Lactococcus lactis strains to produce the anti-listeria compounds and (2) evaluate the effect of films activated with a twofold concentrated cell-free supernatant of La. lactis to inhibit Listeria monocytogenes. For the growth conditions, skimmed milk added to either Ml7 or MRS provided the highest levels of anti-listeria activity assayed (800 arbitrary unit per milliliter) for both La. lactis strains. A significant decrease of Li. monocytogenes counts was observed in cheese packed in films treated with an average decrease of 2.12 log colony-forming unit per gram after 15 days of storage.

Dalzini°E, Perussello C, Solari F, Cosciani_Cunico °E, Losio°MN, Daminelli°P

Export USA of Italian salami : combined approach based on process control and high pressure processing to reach standard pathogens inactivation

Food Micro : 19-22 July 2016, Dublin, Ireland : abstracts book / [s.l. : s.n., 2016]. - p 453 [Nr. Estr. 7297]

Food Micro : Dublin, Ireland : 19-22 July 2016)

The USDA/FSIS has proposed performance standards for ready-to-eat (RTE) products such as fermented sausages. These standards require a 6.5-log10 reduction for Salmonella and a “zero tolerance” for other pathogens as Listeria monocytogenes. It is difficult to reach the mentioned levels during the process of Italian salami. Therefore the effectiveness of a post-lethality treatment as high pressure processing (HPP) were study when used in combination with fermentation and drying processes towards the pathogens inactivation in Italian Salame Piacentino. Around 100 kg of Salame Piacentino were produced from fresh pork meat and fat in agreement with the manufacturer’s specification and contaminated with L. monocytogenes and Salmonella Typhimurium. The fermentation, drying, storage and ripening stages took place at IZSLER. At the end of the ripening salami were vacuum packed and treated with 600 MPa for 5 minutes in two different pressure vessels. Pathogens inactivation and physicochemical transformations (pH, aw, fat, protein, moisture, salt, nitrates and nitrites) were monitoring during each phase. The acidification phase during fermentation was characterized by a pH decrease until achieving a minimum value of 5.21 }0.01 in 6 days due to a rapid growth of lactic bacteria starter. These conditions influence the pathogens behavior: cell counting varied from 5.48 log10 to 4.88 log10 CFU/g for Listeria and from 5.32 log10 to 2.92 log10 CFU/g for Salmonella. The additive residual levels found in this work were in agreement with the European food legislation. After HPP the inactivation levels (as an average for the two vessels) were 2.12 }0.40 and 4.01 }0.01 logarithmic cycles for Listeria and Salmonella, respectively. Respect to conventional heat treatments, the HPP is able to reduce high levels of undesirable microorganisms at room temperature, inducing minimal damage to the nutritional and sensory profiles of the food.

Daminelli°P, Dalzini°E, Cosciani_Cunico°E, Monas tero°P, Cammi°G, Losio°MN, Merialdi°G, Varisco°G

Il trattamento ad alta pressione per l'inattivazione di Listeria monocytogenes e Salmonella typhimurium nei salumi italiani : risultati preliminari

XVII Congresso Nazionale SIDiLV : Pacengo di Lazise (VR), 28-30 Settembre 2016 : volume degli atti / [s.l. : Societa' Italiana Diagnostica di Laboratorio Veterinaria (SIDiLV), 2016]. - p 272-273. - 5 bib ref [Nr. Estr. 7375]

Congresso Nazionale Societa' Italiana Diagnostica di Laboratorio Veterinaria (SIDiLV) (17. : Pacengo di Lazise (VR) : 28-30 Settembre 2016)

High pressure processing (HPP) is particularly interesting for non cooked packaged foods: pathogens and spoilage microorganisms are inactivated without damaging color, texture and flavor. Nonetheless, the Jack of knowledge on microbial growing pattern In specific food matrices is a major drawback for consolidating this technology. During the 50-day manufacturing process of salami Piacentino, the lactic acid batteria count increased while the populations af L. monocytogenes and Salmonella typhimurlum artificially inoculated decreased. Despite the high efficiency of HPP for assuring sale microbiological levels In salami Piacentino for Salmonella spp, further pressure/time conditions must be tested for Listeria spp.

Defilippo°F, Garau°L, Nannelli R, Penocchio°G, P agani M

Note sul primo corso di formazione dedicato agli acari infestanti degli alimenti = Annotations on the "Continuing education course on the preparation, identification and conservation of the food infesting mites"

Tec Molit. - Vol. 67 no 2 (2016). - p 86-94. - 11 bib ref [Nr. Estr. 7205]

Nello scorso mese di settembre (2015) si svolto un corso di addestramento organizzato dall'Ufficio per la Formazione dell'IZSLER dedicato alla preparazione, identificazione e conservazione degli acari delle derrate. Il corso, della durata di tre Giorni, era rivolto esclusivamente a dipendenti degli IIZZSS. Le lezioni hanno riguardato van aspetti dell'Acarologia merceologica, alcuni di carattere più generale come biologia, sistematica, altri più specifici come l'identificazione oltre che la microscopia, la raccolta, la preparazione, la conservazione. Durante ii corso sono state fornite anche indicazioni bibliografiche. Nel presente lavoro vengono, presentate in modo schematico le sintesi delle vane lezioni.

In September 2015, a training course on the examination, identification and storage of food infesting mites was held by the IZSLER Continuing Education Bureau. The three days course was held for the IIZZSS staff only. The lessons concerned several topics of the stored food acarology; some topics were general, like biology, systematic, and others were specific, like identification, microscopy, collection, preparation, conservation. During the course, a basic bibliography was supplied. In this work the summary of the lessons are presented in a synthetic way.

Defilippo°F, Pinna°M, Savoldelli S, Merialdi°G, Dottori°M, Bonilauri°P

L'entomologia forense applicata alla sicurezza alimentare : primi risultati

La gestione della sicurezza alimentare e i controlli ufficiali : nuovi approcci e tendenze in ambito nazionale e comunitario : XXVI Convegno Nazionale Associazione Italiana Veterinari Igienisti (AIVI) : Isola di Salina, Messina,14-16 Settembre 2016 : abstract book / [s.l. : s.n., 2016]. - p 24-25 (Poster P016) [Nr. Estr. 7345]

Convegno Nazionale Associazione Italiana Veterinari Igienisti (AIVI) (26. : Isola di Salina, Messina : 14-16 Settembre 2016)

Nel mondo globalizzato, alla luce della forte circolazione di materie prime e prodotti finiti in ogni parte del mondo, le infestazioni sono un problema emergente soprattutto nei paesi sviluppati. La datazione dell'infestazione diviene di giorno in giomo più fondamentale al fine di comprendere quale misura di controllo è fallita e prendere la giusta decisione al fine di limitare o eliminare la presenza di artropodi negli alimenti. La datazione dell'infestazione in campo medico legale è fre quente e standardizzata, mentre sono scarsi o pressoché assenti modelli e metodi entomologici forensi sviluppati per la ricerca, la tipiz¬zazione e la datazione di infestazione negli alimenti. Nel 2015 l'Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia Romagna ha awiato un progetto di ricerca (PRC2014004) con il principale obiettivo di colmare questa lacuna. In questo contributo presentiamo i primi dati utili alla costruzione di un modello matematico predittivo per il tempo di sviluppo del Lepidottero Piralide Plodia interpunctella (Hilner). L'allevamento è stato realizzato partendo da esemplari di P interpunctella provenienti dai laboratori dell'Università degli Studi di Milano. Le larve ottenute sono state in parte allevate su dieta stan¬dard e in parte su cioccolato a temperature costanti (25 e 27℃). Per ogni temperat ura di allevamento sono state effettuate 5 repliche (N=200). L'osservazione dello sviluppo larvale e dei parametri di crescita è stato eseguito giornalmente. Per ogni replica e per ogni tem-peratura di allevamento sono stati valutati gli accumulated degree days (ADD) per l'intervallo uovo-pupa e uovo-adulto (con lower deve¬lopment threshold pari a 14℃ e passaggio di stadio in alme no 80% degli esemplari per replica) e delle curve di crescita larvale secondo Reiter-Grassberger 2001. Differenze medie nel tasso di sviluppo alle diverse temperature e sui differenti substrati di crescita sono state valutate tramite test ANOVA con P<0,05. I tempi di sviluppo uovo-pupa e uovo-adulto non differiscono tra le repliche analizzate in tutti gli esperimenti condotti. Gli ADD uovo-adulto calcolati per esemplari allevati su dieta standard sono risultati sempre pari a 299 indipendentemente dalla temperatura di allevamento, mentre per gli esemplari allevati su cioccolato gli ADD sono pari a 494 a 25℃ e 481 a 27℃. La minore temperatura di allevamento pare influire maggior¬mente sugli ADD uovo-pupa in entrambe le diete (247:25℃; 208:27 e 429:25 e 403:27℃ dieta standar d e cioccolato, rispettivamente). I tassi di sviluppo ottenuti tramite analisi delle curve di crescita delle larve fino allo stadio pupale sono risultati

significativamente differenti (P<0,01) tra i due substrati di crescita, mentre nessuna differenza significativa è stata osservata tra 25 e 27℃. L'os servazione degli ADD ha evidenziato la maggiore sensibilità alla temperatura di P interpun¬ctella solo nella fase uovo-pupa causando un accorciamento della fase larvale a 27℃, alla quale però non corrisponde una riduzione della fase pupale. I risultati preliminari ottenuti sono stati molto soddisfacenti poiché è stato possibile evidenziare la correlazione tra la velocità di crescita e il substrato alimentare delle larve, fornendo dei primi dati sperimentali che possono essere applicati in casi reali di infestazione di alimenti, al fine di definire le diverse responsabilità tra i differenti soggetti della filiera produttiva.

Delibato E, Bilei S, Terlizzi P, Pucci E, Capuano F, Bertasi°B, Finazzi°G, Lovari S, Losio°MN, De_Medici D, Proroga YT

Yersinia enterocolitica nella filiera suinicola : sviluppo di metodologie molecolari per la valutazione del rischio microbiologico

La gestione della sicurezza alimentare e i controlli ufficiali : nuovi approcci e tendenze in ambito nazionale e comunitario : XXVI Convegno Nazionale Associazione Italiana Veterinari Igienisti (AIVI) : Isola di Salina, Messina,14-16 Settembre 2016 : abstract book / [s.l. : s.n., 2016]. - p 19-20 (Poster P006) [Nr. Estr. 7347]

Convegno Nazionale Associazione Italiana Veterinari Igienisti (AIVI) (26. : Isola di Salina, Messina : 14-16 Settembre 2016)

I dati della European Food Safety Authority relativi alla prevalenza di agenti zoonotici, che individuano in Yersinia enterocolitica (YE) la terza zoonosi a livello europeo, rappresentano la base su cui costruire programmi di controllo lungo la filiera dei prodotti di origine animale. Nell'ambito di tali programmi e in relazione alla presenza di YE, è necessario avvalersi di metodi rapidi, economici ed automatizzati, considerando che il metodo di analisi di riferimento per la ricerca di questo microrganismo richiede più di 7 giorni. A tale scopo, nel presente lavoro, è stata valutata la presenza di YE patogena nella filiera suinicola utilizzando il metodo real-time polymerase chain reaction ISO 18867 (RT-PCRS). Inoltre, considerando che alla specie YE appartengono stipiti caratterizzati da una notevole variabilità negli attributi di virulenza e solo alcuni bio-sierotipi sono patogeni per l'uomo e gli animali, il lavoro si è focalizzato sulla caratterizzazione molecolare di differenti geni di virulenza (ail, ystA, ystB, myfA, hreR fes, fepD, virF), mediante SYBR green real-time PCR (SGRT-PCR). Le piattaforme sono state utilizzate per valutare sia ceppi di YE isolati da campioni clinici, alimentari e ambientali sia campioni prete/ali lungo la filiera suinicola. Sono stati selezionati 153 ceppi di YE, 20 ceppi non-YE e 30 microrganismi non-Yersinia pertestare la specificità delle piattaforme real-time PCR. Successivamente, 130 campioni, rappre¬sentati da spugnette su carcassa e carne di suino, sono stati analizzati, sia con il metodo ISO 10273 sia con i metodi molecolari, per verificare e caratterizzare la presenza di YE patogena eventualmente presente. I risultati ottenuti dalla correlazione tra i bio-sierotipi e i geni target inclusi nelle due piattaforme RT-PCRSG, hanno evidenziato una stretta associazione tra il gene ail, considerato indicatore esclusivo di patogenicità, ed il gene ystA. Similmente resta confermata l'assenza di questi due geni nei ceppi biotipo lA non patogeni, ma in un ceppo 1A/0:3, isolato dall'uomo sono stati ritrovati i geni ail, ystA e myfA. Relativamente al locus ystB, associato ai soli biotipi non patogeni, è stata individuata la sua presenza in due ceppi biotipo 2, 0:8 e 0:9 e in un due ceppi bio-sierotipo 3/0:5 e 1B/0:-. I geni fes e fepD, codificanti per l'utilizzo del ferro dell'ospite, sono stati riscontrati in stretta sinergia tra loro per la maggior parte dei ceppi diversi dal biotipo 1A. La diffusione del gene virF sembra essere correlata al sierotipo 0:3/2/4. I risultati ottenuti dall'analisi dei 130 campioni, mediante le piattaforme molecolari, hanno evidenziato l'assenza del gene ail e la sua correlazione con i geni ystA e virF. Il 46,92% dei campioni ha mostrato la presenza del gene ystB, risultando così positivo alla pre¬senza di YE. I geni fes e fepD sono stati riscontrati nel 44,96 e 45,38%, confermando un andamento omogeneo rispetto alla pre¬senza di ystB. Le metodologie sviluppate hanno permesso sia una rapida identificazione del patogeno sia una sua caratterizzazione nei vari punti della filiera suinicola. I protocolli analitici sviluppati, qualora applicati, potrebbero implementare le attività di sorveglianza allo scopo di stimare in modo concreto il rischio microbiologico associato a questa categoria di prodotti.

Di_Pasquale S, Suffredini E, Bertasi°B, Losio°MN, De_Medici D

Optimizzation of a protocol for the selective recovery viral nucleic acids from food samples by oligo-conjugated magnetic beads : preliminary data

5th International Society for Food and Environmental Virology (ISFEV) Conference proceedings : Kusatsu, Japan, 13th-16th September 2016 / organized by International Society for Food and Environmental Virology (ISFEV). - [s.l. : s.n., 2016]. - 2 p (Poster 27) [Nr. Estr. 7349]

International Society for Food and Environmental Virology (ISFEV) Conference (5th : Kusatsu, Japan : 13th-16th September 2016)

Fabbi°M, Vismarra A, Faccini°S, Kramer L, Vicari° N, Prati°P, Mangia C, Marino AM, Rosignoli°C, Rigamonti°S, Zannella°G, Genchi M

Valutazione del rischio di trasmissione di Toxoplasma gondii attraverso il consumo del "prosciutto di Parma" DOP

XVII Congresso Nazionale SIDiLV : Pacengo di Lazise (VR), 28-30 Settembre 2016 : volume degli atti / [s.l. : Societa' Italiana Diagnostica di Laboratorio Veterinaria (SIDiLV), 2016]. - p 63-64. - 5 bib ref [Nr. Estr. 7361]

Congresso Nazionale Societa' Italiana Diagnostica di Laboratorio Veterinaria (SIDiLV) (17. : Pacengo di Lazise (VR) : 28-30 Settembre 2016)

Toxoplasma gondii is considered one of the most common parasitic infections in the world and its cysts represent an important source of Infection for human being. "Prosciutto di Parma DOP" in a typical Ital¬ian park product well known ali over the world. Little Information is available concerning the effect of curing and sa 'ling on T. gondii cysts In ha m. The aim of this study was to evaluate the survival and viability of T. gondii cysts in cured hams processed according to the procedural of the "Prosciutto di Parma" Consortium. Sixteen pigs were infected with sporulated T. gondii oocysts and slaughtered 4 months later. Twelve thighs were cured and 12 were immediately analyzed. After 12 months of seasoning, hams were tested by cell culture and bioassay to evaluate the vitality of the parasite. Data obtained from the cured hams indicated no evidence of viable parasites. This Is the first study applied to evaluate the influence of processing of cured ham on the viability of T. gondii.

Finazzi°G, Bertasi°B, Pavoni°E, Losio°MN, Vari sco°G

FLOQSwabTM: a field study for evaluate the optimization of microbiological recovery from surfaces for environmental monitoring

4rd European Association of Veterinary Laboratory Diagnosticians (EAVLD) Congress : 6-9 November 2016 6-9 November 2016 : abstract book / [s.l. : s.n., 2016]. - p 173 (P102) - bib ref [Nr. Estr. 7417]

European Association of Veterinary Laboratory Diagnosticians Congress (EAVLD) (4rd : Prague, Czech Republic : 6-9 November 2016)

introduction: The FLOQSwabTM its a specimen collection device worldwide recognized for its superior performance in clinical diagnostics. The aim of this work was to compare it to the traditional rayon tipped swab, on environmental microbiological sampling, carried out on different surfaces in dairies. materials and methods: Samples were double collected from different surface materials: stainless steel, polypropylene, wood, and cupper. Seventy six surfaces were analyzed for detection of L. monocytogenes according to RT-PCR IQ-CheckTM Kit Bio-Rad, with confirmation of positive samples according to ISO 11290-1:1996 /Amd 1 :2004; 58 surfaces (21 stainless steel, 11 polypropylene, 8 cupper, 6 woods and 12 not known, were analyzed according to ISO 4833-2:2013 Corl :2014 for total mesophilic count (TMC). RESULTS: Three surfaces out of 71 were positive for L. monoctyogenes by RT-PCR method, positivity was confirmed by ISO cultural method in 2 samples collected by FLOQSwabTM, and only in 1 sample collected with traditional swab. TMC data showed

a higher recovery rate by FLOQSwabTM on 27 samples (46,6%); traditional swab had better performance, respect to FLOQSwabTM, on 12 samples (20,7%). discussion and conclusions: FLOQSwabTM seemed to be more efficient on polypropylene, stainless steel and cupper surfaces, while the traditional swab showed a higher recovery rate on wood. This study demonstrated that FLOQSwabTM is a good food-surfaces collection device for environmental monitoring and shows a higher recovery rate on different types of surfaces. The low number of positive samples for L. monocytogenes does not allow determining whether FLOQSwabTM is better than traditional swab for environmental recovery of pathogens.

Finazzi°G, Bertasi°B, Vitali A, Losio°MN, Varisc o°G

STEC prevalence in raw milk cheese produced in Lombardia

Eur J Public Health. - Vol. 26 suppl 1 (2016). - p 346 [Nr. Estr. 7429]

European Public Health Conference (9th : Vienna, Austria : 9 - 12 November 2016)

STEC (Ship Toxin Escherichia coli) are a group of microorganisms responsible of sever human illness as Hemorrhagic colitis and HUS (hemolytic uremic syndrome). Raw milk, and dairy products made with raw milk, together with bovine meat, sprouted seeds are the food more frequently associated with episode of foodborne outbreaks. Since 2014 Sanitarian Authority of Lombardy Region established a monitoring plan to verify the prevalence of STH: in cheese produced with raw milk by different dairies throughout the whole region. 430 curd were collected during 2014, and analyzed for STEC detection according to ISO ITS 13136:2012 method, able to identify presence of STx genes, eac gene and top 6 STEC serogroups (026, 0103. 0111, 0145, 0157 and 0104). In cases of confirmed presence, or even in cases of presumptive presence, the cheese obtained from these curds was analyzed at the end of the specific aging period. In 64 curds up to 430 (14,88%) STEC was presumptive present, in 8 cases STEC was confirmed present (1,86%1. (2 strains were cite none belonged to one of Top six serogroups). Regarding cheeses batches made from positive or presumptive positive curds, analyzed at the end of aging period, in 24 samples up to 169 (14,206,1 STEC was presumptive present and in 5 cases (2,96%) was confirmed present. (1 strains were cae none belonged to one of Top six serogroups). Cheese batches confirmed positive or even presumptive positive were withdrawn and destroyed by the Regional Sanitarian Authority. ST EC prevalence observed was comparable to data reported by the EU Reference Laboratory for E. coli, and it underlines the importance to maintain an active monitoring plan to verify the spread of this microorganisms. The decision of the Sanitarian Authority to apply the precautionary principle and to withdraw the cheese even in cases of sTEc presumptive presence is justified by current scientific knowledge in order to preserve consumer safety.

Finazzi°G, Dalzini°E, Pavoni°E, Merigo°D, Damin elli P, Losio°MN

From flour to gluten-free products: a survey study on safety and microbial quality in Italian pasta factories

4rd European Association of Veterinary Laboratory Diagnosticians (EAVLD) Congress : 6-9 November 2016 6-9 November 2016 : abstract book / [s.l. : s.n., 2016]. - p 76 (P011) - bib ref [Nr. Estr. 7418]

European Association of Veterinary Laboratory Diagnosticians Congress (EAVLD) (4rd : Prague, Czech Republic : 6-9 November 2016)

INTRODUCTION: The increasing of celiac population makes necessary a study to assess the absence of gluten in "gluten-free" products, and to provide their microbiological quality. MATERIALS AND METHODS: A total of 12,239 gluten-free products and 180 environmental swabs, were analyzed to investigate possible traces of gluten. Of these 1,250 samples were analyzed to evaluate the presence and the levels of Total Mesophilic Bacteria (TMB), Enterobacteriaceae (ENT) Yeasts and Moulds (Y&M), Coagulase Positive Staphylococci (CPS), presumptive Bacillus cereus, Listeria monocytogenes (Lm), Salmonella spp. and Staphylococcal Enterotoxins (SE). RESULTS: In 0.8% of samples, traces of gluten were detected (range of 20-80 mg kg-1). For microbial analyses, the majority of samples indicated low contamination levels, even if high values of spoilage bacteria were found in egg-containing products. Lm was found only in one sample, whereas Salmonella spp. was not found. B. cereus colonies were numerated in some products, like in dry pasta made with rice. Also, a frequent contamination by CPS was found during our investigation but the SE were never found. DISCUSSION AND CONCLUSIONS: The current study verified that some gluten-free products contained trace amounts of gluten showing that a gluten-free diet completely devoid of gluten is unrealistic. For the microbial contamination, the frequent B. cereus and CPS contamination in raw products proved how the microbiological quality could be important for the safety of processed foods. Considering the increase of gluten-free products in the daily diet, and the higher probability to get sick by the celiac individuals, the study of their microbiological quality resulted to be important.

Finazzi°G, Losio°MN, Varisco°G

FLOQSwab (TM) : optimisation of procedures for the recovery of microbiological samples from surfaces

Ital J Food Safety. - Vol. 5 (2016). - no 5756 (p 121-123). - 11 bib ref [Nr. Estr. 7388]

The FLOQSwabTM is a specimen collection device worldwide recognised for its superior performance in the clinical diagnostics. The aim of this work was to evaluate FLOQSwabTM for the recovery of microbiological samples from surfaces compared to the traditional swab (rayon tipped swab) as per ISO 18593:2004 standard. The FLOQSwabTM, thanks to its innovative manufacturing technology, allows improving the efficiency of recovery and release of analyte. The study has been divided into two experiments. In the first experiment the two swabs were evaluated for their capacity to recover and release the analyte (three different bacterial loads of Escherichia coil). In, the second experiment, the two swabs were evaluated for their capacity to recover three different bacterial loads of E. coil from two different surface materials (stainless steel and polypropylene). In all experiments the flocked swab demonstrated a higher recovery rate compared to the traditional rayon tipped swab. The data obtained from this preliminary study demonstrated that the FLOQSwabTM could be a good food surfaces collection device, which improves the recovery of the analyte and thus produces accurate results. Based on the outcomes of the study, a larger field study is in progress using the FLOQSwabTM for samples collection to improve both environmental monitoring and the efficacy of the hygiene controls for food safety.

Galimberti C, Corti I, Cressoni M, Moretti VM, Menotta°S, Galli U, Cambiaghi D

Evaluation of mercury, cadmium and lead levels in fish and fishery products imported by air in North Italy from extra-European Union countries

Food Control. - Vol. 60 (2016). - p 329-337. - 67 bib ref [Nr. Estr. 7134]

The levels of cadmium (Cd), mercury (Hg) and lead (Pb) were evaluated in 251 samples of fish and fishery products randomly collected between January 2010 and December 2013 from products imported through the airport of Milan Malpensa from extra-European Union (extra-EU) Countries and inspected at the Border Inspection Post by official public veterinarians. In this study, products were classified in four categories: predatory fish (larger predatory fishes like tunafish and swordfish, and spiny dogfish), non-predatory fish (other species of fishes of lower dimensions and different feeding behavior, mollusc (cephalopods and bivalves) and crustacean). Analyses were performed by accredited laboratory. All the concentrations were below the levels expressed in Regulation (EC) No 1881/2006 except for two samples of swordfish that exceeded in Hg content. Predatory fish had a significantly higher content of Hg (median value 375 µg kg-1) while mollusc had a significantly higher content of Cd (median value 66.5 µg kg-1) compared to the other groups of seafood included in this study. No relationship was found between the individual concentration of metals.

Garbarino°C, Interisano M, Chiatante A, Merli E, A rrigoni°N, Cammi°G, Ricchi° M, Tonanzi D, Pozio E

Trichinella spiralis, a new alien parasite in Italy, and the increased risk of infection for domestic and wild swine

XXIX Congress Societa' Italiana di Parassitologia SOIPA & European Veterinary Parasitology College "Parasites, Poverty and Social commitment" : Bari, June 21-24, 2016 / [s.l. : s.n., 2016]. - p 55 [Nr. Estr. 7553]

Congress Societa' Italiana di Parassitologia SOIPA & European Veterinary Parasitology College (29. : Bari : June 21-24, 2016)

The circulation of nematodes of the genus Trichinella in Italy is known since 1887, when these parasites were discovered in the muscles of a woman at the autopsy in Camerino (Marche region). At that time, the parasite was identified as Trichina spiralis since only this species was known. On the basis of the present knowledge, we can suspect that the woman could be infected by Trichinella britovi. Between 1933 and 1946, trichinellosis outbreaks caused by the consumption of Trichinella spiralis-infected pigs occurred in Sicily. From 1968 to 2016, the identification at the species level of Trichinella spp. larvae collected from muscles of 351 wild and domestic animals of Italy, shows that 342 (97.4%) were T. britovi, 8 (2.3%) T. pseudospiralis, and 1 (0.3%) T. spiralis. The only one T. spiralis isolate originated from a fox (Vulpes vulpes), which had been shot at Jaffereau (Bardonecchia, Turin) at the border between Italy and France, in 1991. In January 2016, Trichinella sp. vital larvae (>100 larvae/g) were detected in muscles of a 2-year-old male fox shot in the Travo municipality (333 m asl), Val Trebbia, Piacenza province, Northern Italy. Larvae were identified as T. spiralis. The discovery of T. spiralis is a serious concern for the risk of introduction of this zoonotic pathogen among free-ranging and backyard pigs and in the wild boar population and, consequently, for humans. This species shows a higher larval burden and a longer survival time than that of the other Trichinella species in domestic and wild swine. This nematode species may have been introduced in the Emilia Romagna region from Eastern Europe by hunters, by a hunting dog, by imported animals (horses), or by immigrants, who illegally carried out infected meat in their personal baggage. However, other introduction ways cannot be excluded.

Gasparini°M, Ferretti°E

Confirmatory method for the determination of carbamate residues in fat sample by liquid chromatography-tandem mass spectrometry

11th European Pesticide Residue Workshop : Limassol, Cyprus, 24th-27th May, 2016 / [s.l. : s.n., 2016]. - p 121 [Nr. Estr. 7284]

European Pesticide Residue Workshop (11th : Limassol, Cyprus : 24th-27th May, 2016)

European regulations 396/2005, state that analytical methods for the determination of pesticide residues in animal products must be able to reveal concentrations lower than the maximum allowed residue levels (MRLs). Moreover the Italian Health Ministry issues every year the National Plane for Residues Research (PNR), that refers to the European Commission Regulations, that included carbamate pesticides. In this work we describe the method developed for the carbamate residues analysis in fat, by liquid chromatography tandem mass spectrometry, used for laboratory routine analysis. The confirmatory method is in compliance with European Regulations, is multi-residue and achieved sensitivity fit for purpose, with three days analysis time. The procedure allows simultaneous analysis of 15 analytes. Fat is a complex biological matrix and before the analysis is necessary to process the sample. The procedure is based on the use of the solvent extraction using a mix of three different solvents, a single Gel Permeation Chromatography (GPC) purification step and HPLC analysis with tandem mass spectrometry (LC-MS/MS) detection operated in El positive mode. The method was validated as a quantitative confirmatory method according to the Document N°SAN-CO/11945/2015: study of matrix matched calib ration, solvent calibration and instrumental

linearity, Limit of Quantification (LOQ), specificity, precision, trueness and uncertainty were evaluated for all the analytes. Precision and trueness was checked at LOQ, 5xL0Q; mean recoveries (trueness) ranged between 60 and 105% for every pesticides and the RSDr to determine the repeatability was below 20%. Uncertainty evaluated was below 50% for every analytes. The results appeared very satisfying and coherent with the criteria indicated in the Document N'SANC0/11945/2015. The method has been applied for the last year and 450 fat samples of different animal species have been analyzed; non compliant samples haven't been found and carbamate residues haven't been never detected.

Genchi M, Vismarra A, Mangia C, Kramer L, Vicari°N , Faccini S; Rigamonti°S, Fabbi°M

Risk assessment of Toxoplasma gondi infection through the consumption of "Prosciutto di parma" DOP : preliminary data

XXIX Congress Nazionale Societa' Italiana di Parassitologia SOIPA & European Veterinary Parasitology College "Parasites, Poverty and Social commitment" : Bari, June 21-24, 2016 / [s.l. : s.n., 2016]. - p 68 [Nr. Estr. 7554]

Congress Societa' Italiana di Parassitologia SOIPA & European Veterinary Parasitology College (29. : Bari : June 21-24, 2016)

Toxoplasma gondii is considered one of the most common parasitic infections in the world due to its impressive range of hosts, widespread environmental contamination and the diverse means by which animals can be infected (EFSA, 2007). "Prosciutto di Parma" is a typical and popular Italian pork product known all over the world, highly valued for its flavor. T gondii cysts in pork are persistent and they represent an important source of infection for human. However, little information is available concerning the effect of curing and salting on T gondii cysts in ham. Furthermore, the scientific community and in particular the public opinion have diverse views on the possibility of transmission that could be observed through the consumption of cured ham. The aim of this study was to evaluate the survival and viability of tissue cysts of T gondii in cured hams according to the procedural guideline of the "Prosciutto di Parma" consortium. Twelve pigs were infected per os with 1000 sporulated T. gondii oocysts and slaughtered 4 months later. Twelve thighs were cured and 12 were immediately digested according to Dubey (Vet Parasitol. 15;74:75-7, 1998). To verify the infection, serology, meat juice serology, PCR from muscle tissue, cell cultures, and bioassay in mice were carried out. After 12 months of ageing, hams were digested and processed by cell culture, RT-PCR and bioassay in mice to evaluate the vitality and the presence of parasite DNA. All pigs became infected. Preliminary data from the hams indicated the presence of T. gondii DNA, while the cell-cultures were negative. The bioassay in mice is still in progress. This study is the first in which the influence of processing of cured ham on the viability of T. gondii has been evaluated.

Giacometti F, Bardasi°L, Merialdi°G, Morbarigazzi M, Federici S, Piva S, Serraino A

Shelf life of donkey milk subjected to different treatment and storage conditions

J Dairy Sci. - Vol. 99 no 6 (2016). - p 4291-4299. - 35 bib ref [Nr. Estr. 7288]

The aim of this study was to investigate the effects of different treatment conditions on microbiological indicators of donkey milk hygiene and their evolution during shelf life at 4 and 12℃ from 3 to 30 d, simulating a farm-scale pasteurization and packing system. Four treatment conditions were tested: no treatment (raw milk), pasteurization (65℃ × 30 min), high-pressure processing (HPP), and pasteurization plus HPP. The microbiological quality of the raw donkey milk investigated was not optimal; our results highlight the importance of raw milk management with the need for animal hygiene management and good dairy farming practices on donkey farms to improve handling procedures. The raw milk treated with HPP alone showed visible alterations with flocks, making the

milk unfit for sale. The microbiological risk posed by consumption of raw donkey milk was significantly reduced by heat treatment but farm-scale packing systems cannot guarantee an extended shelf life. In contrast, the pasteurization plus HPP treatment was the most effective method to maintain microbiological milk quality. Microflora growth had little effect on pH in donkey milk: pH values were significantly different only between raw milk and pasteurized and pasteurized plus HPP milk stored at 12℃ for 3 d. Alkaline phosphatase a ctivity and furosine could be used as indicators of proper pasteurization and thermal processing in donkey milk. Moreover, the presence and growth of Bacillus cereus in the case of thermal abuse hamper the wide-scale marketing of donkey milk due to the potential consequences for sensitive consumers and therefore further tests with time/temperature/high-pressure protocols associated with B. cereus are needed. Finally, our study shows that an HPP treatment of pasteurized milk after packing extends the shelf life of donkey milk and assures its microbial criteria up to 30 d if properly stored at 4℃ until opening; therefore, combined heat treatment and storage strategies are recommended to enhance the shelf life of donkey milk.

Grilli E, Tormo H, Fustini M, Deneufbourg C, Losio° M, Formigoni A, Chaucheyras- Durand F, Durand H

Is Raw Milk Microbiota Influenced by the use of Live Yeast (Saccharomyces cerevisiae) as Ruminant Feed Additive?

Int J Dairy Sci. - Vol. 11 no 3 (2016). - p 124-129. - 27 bib ref [Nr. Estr. 7244]

Live Saccharomyces cerevisiae yeast strains are widely used as feed additives for dairy cows. Although, perfectly safe and applied in several food processes, the potential contamination of milk by the strain and more generally its possible influence on the microbial profile of milk could be questioned, this concerns particularly traditional cheeses made with raw milk. In an attempt to address these questions, two experiments were performed: A trial in an experimental farm, where two groups of cows, one receiving yeast supplementation and the other one being an unsupplemented control, were compared and a field trial where herds received alternatively yeast-supplemented and control diets. In both cases, viable counts of different microbial groups, including yeasts and molds in general and S. cerevisiae in particular were analysed in tank milk and results from supplemented groups or periods were compared with control ones. No viable S. cerevisiae were detected in any of the samples analysed. Moreover, no noticeable differences in the microbial profiles were observed. This applies also to the evolution of the microbial composition during an experimental cheese processing trial. These data suggest that live yeast additive distributed to dairy cows does not influence milk microbial composition and cheese-making abilities.

Gustinelli A, Barbieri S, Fioravanti ML, Caffara M, Govoni G, Rubini°S, Bergamini M, Raglio A, Prearo M

Freshwater fish-borne parasitic zoonoses in Italy

9th European Public Health Conference : All for Health - Health for All : 9 - 12 November 2016 Vienna, Austria / [s.l. : s.n., 2016]. - Eur J Public Health. - Vol. 26 suppl 1 (2016). - p 453-454 [Nr. Estr. 7424]

European Public Health Conference (9th : Vienna, Austria : 9 - 12 November 2016)

Background Fish-borne parasitic zoonoses are widespread all over the world. In 2010 EFSA emphasized the need to define the risks for the consumers through epidemiological studies on fish-borne zoonoses, with special reference to those linked to the freshwater environment such as human opisthorchiasis by the metacercar¬iae of liver flukes Opisthorchiidae and human diphyllobothriasis by the plerocercoids of the cestodes Diphyllobothrium spp. In order to identify the fish species and the lacustrine environments considered at risk for transmission of D. latum and Opisthorchis felineus to humans, a parasitological survey has been carried out in Northern Italy.

Methods A parasitological survey on zoonotic parasites has been carried out in the period 2013-2015 on 1937 fish belonging to 14 species sampled from Como, Iseo and Garda Lakes in Northern Italy. Results Plerocercoids of D. latum have been found in European perch, pike and burbot in Iseo and Como Lakes. No metacercariae of 0. felineus have been found in the fish examined. Fish from Garda Lake were all negative. Conclusions Our results show that European perch from Iseo and Como Lake is the species with higher risk for transmission to human, being often consumed raw as a traditional dish in local restaurants. 0. felineus has not been found in Northern Italy unlike the Central Italian lakes where it is is endemic. The application of the procedures provided by the EU Regulation 1276/2011 and the Decree of Italian Ministry of Health (2013) on the appropriate treatment for consumption of raw fish products is achieving some results as shown by the decreased occurrence of human cases due to fish parasites, as reported by several physicians. In addition the Italian Ministry of Health has produced specific recommendations to fill the gap in the EU legislation to address the risk of human opisthorchiasis due to the high resistance and the small dimensions of the metacercariae in fish.

Iannetti L, Acciari VA, Antoci S, Addante N, Bardasi°L, Bilei S, Calistri P, Cito F, Cogoni P, D'Aurelio R, Decastelli L, Iannetti S, Iannitto G, Marino AMF, Muliari R, Neri D, Perilli M, Pomilio F, Prencipe VA, Proroga J, Santarelli GA, Sericola M, Torresi M, Migliorati G

Listeria monocytogenes in ready-to-eat foods in Italy : prevalence of contamination at retail and characterisation of strains from meat products and cheese

Food Control. - Vol. 68 (2016). - p 55-61. - 28 bib ref [Nr. Estr. 7245]

In the framework of a European Union (EU) Coordinated Monitoring Programme, different types of ready-to eat (RTE) products, including soft and semi-soft cheese (n = 398) and cooked meat products (n = 403), were collected at retail in Italy and tested for detection and enumeration of Listeria monocytogenes. An Integrative Survey of 2696 samples, including soft and semi-soft cheese (n = 894) and cooked meat products (n = 1802) was carried out to have statistically representative results at the national level. Considering the results obtained both from the EU and the national Integrative Survey, prevalence of contamination of meat products was 1.66% (95% CL: 1.02–2.73%) at the arrival of the samples at the laboratory and 1.92% (95% CL: 1.31%–2.82%) at the end of shelf-life. Spalla cotta was the most frequently contaminated meat product. Prevalence of contamination in cheese was 2.13% (95% CL: 1.37%–3.3%) at the arrival at the laboratory and 1.01% (95% CL: 0.41%–2.55%) at the end of shelf-life. To get information about differences between cheese rinds and pastes, these two parts were separately analysed in the Integrative Survey samples. L. monocytogenes was detected in 4.02% (95% CL: 2.60%–6.19%) of cheese rinds (n = 473), whereas only the 0.34% (95% CL: 0.12%–0.98%) of cheese pastes (n = 894) were contaminated. This difference was statistically significant (2 = 10.026, P < 0.05). Gorgonzola and Taleggio were the most frequently contaminated cheeses. Non-compliance with EU official criteria (100 CFU/g) was reported in 0.55% of meat products at arrival at the laboratory, in 0.46% at the end of shelf-life, and in 1.9% of cheese rinds. PFGE showed that cheese rinds could have been the origin of the few pastes' contamination, highlighting genetic similarity between isolates found in these two cheese components. Genetic subtyping also showed the presence of different pulsotypes, usually belonging to different clusters, in isolates from different food types. The presence of some pulsotypes predominantly prevalent over the others, in products from the same manufacturer, could suggest environmental strains as the main source of contamination.

Kerekes K, Bonilauri°P, Serraino A, Giacometti F, Piva S, Zambrini V, Canever A, Farkas Z, Ambrus A

An effective self-control strategy for the reduction of aflatoxin M1 content in milk and to decrease the exposure of consumers

Food Addit Contam Part A. - Vol. 33 no 12 (2016). - p 1840-1849. - 31 bib ref [Nr. Estr. 7507]

The study reports the results of testing the sensitivity of an early warning sampling plan for detecting milk batches with high aflatoxin AFM, concentration. The effectiveness of the method was Investigated by the analysis of 9017 milk samples collected in Italian milk processing plants that applied control plans with different action limits (AL). For those milk processing plants where 30 ng kg-1 AL has been applied, the AFM, contamination was significantly lower at or above the 95th percentile of the milk samples when compared with plants that used 40 ng kg-1 AL. The results show that the control plan can be used effectively for early warning of occurrence of high AFM, contamination of milk and to carry out pro-active measures to limit the level of contam¬ination. Estimation of dietary exposure was also carried out, based on the aflatoxin M, content of the milk samples and on Italian food consumption data. Estimated Daily Intakes (EDI) and Hazard Indices (HI) were calculated for different age groups of the population. His show that no adverse effects are expected for the adult population, but in the case of children under age three, the approximate HI values were considerably higher. This underlines the importance of the careful monitoring and control of aflatoxin M, in milk and dairy products.

Lorenzi°V, Angelone°B, Ferretti°E, Donati°M, Fusi°F, Angelucci°A, Bertocchi°L

Is it possible to grow corn on PCDD/FS and PCBS contaminated land? preliminary results of an up-take study

Dioxin 2016 : 36th International Symposium on Halogenated Persistent Organic Pollutants : Firenze, August 28th-September 2nd 2016 : program book / editors in chief, Paolo Mocarelli and Paolo Brambilla. - [s.l. : s.n., 2016]. - 1 p. - 6 bib ref [Nr. Estr. 7340]

International Symposium on Halogenated Persistent Organic Pollutants (36th : Firenze : August 28th-September 2nd 2016)

Agricultural soils historically contaminated by dioxins (PCDDs), furans (PCDFs) and polychlorinated biphenyls (PCBs) are often abandoned waiting for expensive and hard remediation plans. A regulated reuse of these areas could be an important step for saving these derelict lands and to bring again some profit to the owners. Corn (Zea mays) is a cereal widely used for both feed and food, but also for several industrial products such as ethanol, rubber tires, plasticsi. In different experiments, maize plants showed a lower PCBs contamination than other crop plants2' 3' 4 and maize kernels often resulted contaminated by PCDD/Fs and PCBs at insignificant levels5' 4. The present study was carried out in Brescia (Northern Italy), an agro-industrial city, which was the site of the only Italian PCB-producing plant. The uptake of PCDD/Fs and PCBs by corn grown on a contaminated field was investigated. Plants were seeded and treated ordinarily by the farmer. On the harvesting time (August 2014), soil and plant samples were collected from an area of 25 m2 according to a X scheme. Nine sampling points were chosen, from each point two maize plants and two soil specimens (at 0-30 cm and 30-60 cm depth) were collected. Soil samples of the same depth level were pooled together and thoroughly homogenized obtaining two composite samples. Maize plants were separated into ears (husk leaves, silks, kernels and corncobs), leaves, stalks, and roots. Each part of the corn plant was carefully rinsed with deionized water, incubated in an ultrasonic bath for 10 min and rewashed with deionized water to remove any soil residues or dust particles. Samples were prepared and analyzed by a certified laboratory, according to US EPA Methods 1613/B (1994) and 1668/C (2010). Quantification of the 17 2,3,7,8-substituted PCDD/Fs, the 12 DL-PCBs and the 6 NDL-PCB indicators was carried out. Soil contamination at 0-30 cm depth was found to be: 2,487.00 ng/kg dw for zPCDD/Fs, 14,281.22 ng/lcg dw for EDL-PCBs and 100,415.07 ng/kg dw for zNDL-PCBs. The level of contamination of soil at 30-60 cm depth was: 2,728.60 ng/kg dw for EPCDD/Fs, 12,952.18 ng/kg dw for EDL-PCBs and 67,083.90 ng/kg dw for zNDL-PCBs. Contaminants concentration in the different plant parts followed the order: roots>stalks and leaves>corncobs>whole ears (husk leaves, silks, kernels and corncobs)>kernels. Roots were found to accumulate the highest amount of contaminants (220.87 ng/kg dw zPCDD/Fs, 3,447.69 ng/kg dw EDL-PCBs and 23,231.30 ng/kg dw ENDL-PCBs), as also reported by other authors3; instead com kernels showed the lowest level of contamination (0.91 ng/kg dw zPCDD/Fs, 24.74 ng,/kg dw

ADL-PCBs and 145.96 ng/kg dw ENDL-PCBs). Bioaccumulation factors (BAF=[PCB]pia„ p,/[PCB1 ,mean soli) and translocation factors (TF=[PCB1 /I-PCB1 ,00ts — ,other plant part) were determined. Roots BAF was 0.085 for PCDD/Fs, 0.253 for DL-PCBs and 0.277 for NDL-PCBs. The obtained values were higher than those reported by other authors for PCBs in maize roots3. Kernels BAF resulted of 0.0003 for PCDD/Fs, 0.0018 for DL-PCBs and 0.0017 for NDL-PCBs. Strek et al. (1981) observed a BAF of 0.001 for PCBs in maize shoots6. Corn kernels TF was found to be 0.004 for PCDD/Fs, 0.007 for DL-PCBs and 0.006 for NDL-PCBs; instead maize stalks and leaves showed the highest TF (0.018 for PCDD/Fs, 0.107 for DL-PCBs and 0.235 for NDL-PCBs). Despite soil contamination, the preliminary results demonstrated that maize kernels are characterized by negligible pollution, in accordance with previous studiess 4. The low accumulation displayed by corn grains could be exploited in order to try a possible regulated reuse of contaminated field for non-food productions. However, more exhaustive data analysis is necessary to understand the possible effect of both soil particle contamination and uptake from air on the corn contaminants concentration found in this study.

Lorenzi°V, Ghidini S, Angelone B, Ferretti°R, Men otta°S, Fedrizzi°G, Varisco°G, Foschini S, Diegoli G, Bertocchi°L

Three years of monitoring of PCDD/F, DL-PCB and NDL-PCB residues in bovine milk from Lombardy and Emilia Romagna regions (Italy) : contamination levels and human exposure assessment

Food Control. - Vol. 68 (2016). - p 45-54. - 55 bib ref [Nr. Estr. 7246]

In the three-years period 2012 e 2014, 160 cow milk samples from farms located in Lombardy and Emilia Romagna regions (Italy) were analyzed during the implementation of the Italian National Residues Monitoring Plan to assess the presence of PCDD/F, DL-PCB and NDL-PCB residues. The obtained contamination data were combined with cow milk consumption data from the Italian national dietary survey to estimate PCDD/F, DL-PCB and NDL-PCB human dietary exposure through the consumption of whole, semi skimmed and skimmed bovine milk. The exposure assessment was carried out separately for children, teenagers, adults and elderly. Average contamination levels of the analyzed samples were found to be 1.26 pg WHO-TEQ/g fat for the sum of PCDD/Fs and DL-PCBs and 9.30 ng/g fat for the sum of the 6 NDL-PCB indicators. PCB 126 was found to be the main contributor to the total WHO-TEQ. Using the upper bound approach, the estimated mean dietary intakes ranged from 0.07 pg WHO-TEQ/kg bw per day to 0.39 pg WHO-TEQ/kg bw per day for the sum of PCDD/Fs and DL-PCBs and considering exposure from whole milk. NDL-PCB mean dietary intakes resulted between 0.52 ng/kg bw per day and 2.86 ng/kg bw per day for consumption of whole milk. Children and teenagers were found to be the most exposed groups. This is the first time that Italian consumers exposure to NDL-PCBs is assessed using contamination data of cow milk produced in Italy.

Merialdi°G, Ramini°M, Parolari G, Barbuti S, Frus toli MA, Taddei°R, Pongolini°S, Ardigò°P, Cozzolino P

Study on potential Clostridium botulinum growth and toxin production in Parma ham

Ital J Food Safety. - Vol. 5 (2016). - no 5564 (p 69-74). - 33 bib ref [Nr. Estr. 7291]

The objective of this study was to investigate Clostridium botulinum growth and toxin production in the industrially manufactured Italian Parma ham. The study focuses on the Parma ham production phase identified as maximum risk to C. botulinum proliferation, i.e. the transition from cold phase (salting and resting) to a phase carried out at temperature between 15 and 23℃ (drying). A preliminary in vitro test was carried out in order to verify the capability of 6 C. botulinum strains (1 type A, 4 type B, and 1 type E strains) to grow in conditions of temperature, pH and NaCl concentration comparable to those of the beginning stage of ham drying. Five C. botulinum strains grew at 20℃ and pH 6, four strains produced toxin when inoculated at a concentration equal to 103 cfu/mL at NaCl concentration of 4%, while when the inoculum concentration was 10 cfu/mL, NaCl concentration of 3% resulted the toxin-genesis limiting factor. An experimental contamination with a mixture of the 5 C. botulinum strains selected by the preliminary in vitro test was performed on 9 thighs inoculated at the end of the resting phase. The study was designed to evaluate the potential growth and toxin production in extremely favourable conditions for the bacterium. Type B proteolytic C. botulinum toxin was produced after 14 days of incubation at 20℃ in 2 thighs characterised by high weight, low number of days of resting and anomalous physiochemical characteristics [one for very low NaCl concentration (1.59%), the other for elevated pH (6.27) and both for high water activity values (>0.970)]. The results of this research confirm that the cold resting step is a critical phase in the production process of Parma ham for the investigated hazard. Based on the present study, the long resting phase adopted in the manufacturing of Parma ham is proven effective to prevent the growth of C. botulinum, an event which could not otherwise be excluded if the hams were processed under less stringent technological conditions.

Moretti S, Dusi°G, Giusepponi D, Pellicciotti°S, Rossi R, Saluti G, Cruciani G, Galarini R

Screening and confirmatory method for multiclass determination of 62 antibiotics in meat

J Chromatogr A. - Vol. 1429 (2016). - p 175-188. - 36 bib ref [Nr. Estr. 7194]

A multiclass method for screening and confirmatory analysis of antimicrobial residues in muscle has been developed and validated, according to Commission Decision 2002/657/EC. Sixty-two antibioticsbelonging to ten different drug families (amphenicols, beta-lactams, diamino-pyrimidine, lincosamides,macrolides, pleuromutilins, quinolones, rifamycins, sulfonamides and tetracyclines) have been includedin the method. After the addition of an aqueous solution of EDTA, the minced muscle was extracted withacetonitrile/water mixture and, later, with pure acetonitrile. The extract was evaporated and redissolvedin ammonium acetate buffer prior to LC injection. Instrumental determination was performed by liquidchromatography coupled to hybrid high resolution mass analyser (LC-HRMS/MS) operating in positiveelectrospray ionization mode. Chromatographic separation was optimized on a Poroshell 120 EC-C18column (100 × 3.0 mm, 2.7 _m) with gradient using methanol and water containing 0.1% of formic acidas mobile phases. The method was validated in bovine muscle in the range 3.3–150 _g kg-1for all antibiotics; for some compounds with MRL higher than 100 _g kg-1, the validation interval has been extended until 1500 _g kg-1. The studied performance characteristics were selectivity, linearity, precision, true-ness (recovery), decision limits, detection capabilities, detection and quantification limits. Satisfactory quantitative performances were obtained for all the analytes. Ruggedness tests demonstrated the applicability to swine and poultry muscle, too. Finally the wide participation in proficiency tests allowed to investigate in deep the method performances.

Morganti°M, Scaltriti°E, Cozzolino P, Bolzoni°L, Casadei°G, Pierantoni M, Foni°E, Pongolini°S

Processing-dependent and clonal contamination patterns of Listeria monocytogenes in the cured ham food chain revealed by genetic analysis

Appl Environ Microbiol. - Vol. 82 no 3 (2016). - p 822-831. - 42 bib ref [Nr. Estr. 7195]

The quantitative and qualitative patterns of environmental contamination by Listeria monocytogenes were investigated in the production chain of dry-cured Parma ham. Standard arrays of surfaces were sampled in processing facilities during a single visit per plant in the three compartments of the food chain, i.e., ham production (19 plants) and postproduction, which was divided into deboning (43 plants) and slicing (25 plants) steps. The numbers of sampled surfaces were 384 in ham production, with 25 positive for L. monocytogenes, and 1,084 in postproduction, with 83 positives. Statistical

analysis of the prevalence of contaminated surfaces showed that in ham production, contamination was higher at the beginning of processing and declined significantly toward the end, while in postproduction, prevalence rose toward the end of processing. Prevalence was higher in the deboning facilities than in slicing facilities and was dependent on the type of surface (floor/drainage > clothing > equipment). The qualitative pattern of contamination was investigated through an analysis of the survey isolates and a set of isolates derived from routine monitoring, including longitudinal isolations. Pulsed-field gel electrophoresis (PFGE) and whole-genome single-nucleotide polymorphism (SNP) analysis revealed a remarkable clonality of L. monocytogenes within plants, with the detection of 16 plant-specific clones out of 17 establishments with multiple isolates. Repeated detections of clonal isolates >6 months apart were also observed. Six was the maximum number of between-isolate differences in core SNPs observed within these clones. Based on the same six-SNP threshold, three clusters of clonal isolates, shared by six establishments, were also identified. The spread of L. monocytogenes within and between plants, as indicated by its clonal behavior, is a matter of concern for the hygienic management of establishments.

Pavoni°E, Dalzini°E, Monastero°P, Galuppini°E, Meletti °F, Bertasi°B, Daminelli°P, Losio°MN, Varisco°G

Frozen berries: use of a combined approach of freezing and ozonation to improve the food safety

Eur J Public Health. - Vol. 26 suppl 1 (2016). - p 346 [Nr. Estr. 7430]

European Public Health Conference (9th : Vienna, Austria : 9 - 12 November 2016)

Pellicciotti°S, Bozzoni°E, Gasparini°M, Gamba°V

Development of a LC-MS/MS confirmatory method for the determination of 9 thyreostats in muscle and thyroid tissue using a quechers approach

International conference MASSA 2016 : Roma, 6-8 Settembre 2016 : abstract book / edited by Maurizio Fiori ... [et al.]. - Roma : Istituto Superiore di Sanità, 2016. - (ISTISAN Congressi ; 16/C4) p 63 [Nr. Estr. 7436]

International Conference MASSA : Roma : 6-8 Settembre 2016)

Administration of thyreostats to livestock causes an increase in the live weight of animals prior to slaughter due to higher retention of water in the edible tissue and the gastro-intestinal tract. Meat derived from treated animals is therefore of lower quality, but may also contain harmful residues. According to the International Agency for Research of Cancer (IARC), some thyreostats possess carcinogenic and teratogenic properties. For this reason, their use for animal fattening is banned in the European Union since 1981. However, the control of their illegal use in breeding animals is particularly difficult because of their low molecular weight, high polarity and existence of tautomeric forms. With the present study, we optimised and validated a robust method for the routine determination and confirmation of nine thyreostatic drugs in muscle and thyroid gland samples using liquid chromatography tandem mass spectrometry. The optimized procedure involves the QuEChERS approach: residues were first extracted with acetonitrile and partitioning salts (sodium chloride, magnesium sulphate, sodium citrate dihydrate and sodium hydrogencitrate sesquihydrate), the extracts were then purified by dispersive SPE. A new clean-up sorbent, SupelTM QuE Z-Sep+/MgSO4, was used and proved to be effective for interference removal from muscle and thyroid extracts. After purification, the compounds were derivatized with 3-iodobenzylbromide in basic medium (pH 8) in order to improve retention and separation on the reserved-phase support and to achieve higher sensitivity of the measurements and lower detection limits. Thyreostatics were determined as 3-IBBr derivatives using conventional HPLC columns and instrumentation and for quantification purposes, three deuterated internal standards, tapazole-d3, propylthiouracil¬d5 and mercaptobenzimidazole-d4 were tested. The method was found to be effective for the determination of tapazole, thiouracil, methylthiouracil, dimethylthiouracil, ethylthiouracil, propylthiouracyl, phenylthiouracil, mercaptobenzimidazole, benzylthiouracyl, dimethylthiouracil. Validation of the confirmative quantitative method was carried out according to Commission Decision 2002/657/EC.

For all compounds, decision limit (CCet) and detection capability (CCD) were found to be below the recommended value set at 10 ug kg-1 by the Community of Reference Laboratories (CRLs). The results obtained from the validation were highly satisfactory and fulfilled all requirements for confirmatory quantitative purposes.

Pellicciotti°S, Giannetti L, Menotta°S, Martinell i°N, Bolzoni°G, Gamba°V

Antibiotic residues in milk during the cheese making process : part I : Effect of the pasteurization step

Residues of veterinary drugs in food : keynote, oral and poster contributions : proceedings of the EuroResidue VIII conference on Egmond aan Zee, The Netherlands, 23-25 May 2016 / edited by Aldert A. Bergwerff. - Wageningen : Wageningen UR, 2016. - p 279-282 (P23). - 8 bib ref [Nr. Estr. 7267]

Euroresidue : conference on residues of veterinary drugs in food (8th : Egmond aan Zee, The Netherlands : 23-25 May, 2016)

Antibiotic residues in milk are not only a potential risk of toxicity to public health, but may also represent a serious problem for the dairy industry. When antibiotic residues are present at any concentration, technological problems may occur in cheese factory due to possible alteration of the fermentation process. Depending on the desired cheese, milk may be pasteurized to reduce the number of spoilage organisms and improve the environment for the starter cultures growth. The information available on the thermostability of antimicrobials for the heat treatments used in the dairy industry is very scarce. The aim of this first part of the study was to estimate the stability of compound belonging to five antibiotic families on fortified milk samples subjected to pasteurization (63℃ for 30 min). Each class of compounds was dete rmined by HPLC-DAD or LC-MS/MS methods before and after pasteurization and the results obtained were comparing to calculate the loss of concentration expressed as degradation percentage due to heating.

Pellicciotti°S, Giannetti L, Menotta°S, Martinell i°N, Bolzoni°G, Gamba°V

Antibiotic residues in milk during the cheese making process : part II : Effect of the skimming step

Residues of veterinary drugs in food : keynote, oral and poster contributions : proceedings of the EuroResidue VIII conference on Egmond aan Zee, The Netherlands, 23-25 May 2016 / edited by Aldert A. Bergwerff. - Wageningen : Wageningen UR, 2016. - p 287-290 (P25). - 6 bib ref [Nr. Estr. 7268]

Euroresidue : conference on residues of veterinary drugs in food (8th : Egmond aan Zee, The Netherlands : 23-25 May, 2016)

Antibiotic residues in milk are not only a potential risk of toxicity to public health, but may also represent a serious problem for the dairy industry. When antibiotic residues are present at any concentration, technological problems may occur in cheese factory due to possible alteration of the fermentation process. Unfortunately, the scientific literature concerning the evaluation of cheese-making processes with respect to the concentration of drug residues in milk is insufficient. Depending on the desired fat content in the final product, some cheeses may be obtained from semi-skimmed or skimmed milk. The aim of the second part of the study was to evaluate the distribution of antimicrobial residues between polar and non-polar constituents of milk obtained from the skimming process. First, the efficiency of skimming was evaluated on bovine whole milk in three different ways: at 4℃ for 6 h, at 20℃ for 6 h and with centrifugation at 3,000 rpm and 4℃ for 10 mi n. The higher percentage of cream was obtained at 4℃ for 6 h (15%); this combination of time and temperature was then selected and applied to fortified milk samples with drugs belonging to five families of antibiotics (ß-lactams, macrolides, quinolones, sulphonamides and tetracyclines). In order to estimate the loss of concentration due to the skimming process, the analyses were performed on

treated and not treated milk samples and each class of compounds was determined by HPLC-DAD or LC-MS/MS methods.

Piccinni L, Russotto°C, Rubini°S, Barbieri°S, D' Incau°M, Guidi E, Bergamini M

Prevalenza di ceppi di salmonella multiresistenti agli antibiotici in prodotti alimentari destinati al consumo umano

49°Congresso Nazionale Società Italiana di Igiene (SITI) : 16-19 Novembre 2016 Napoli : Atti congressuali e comunicaizoni orali / [s.l. : s.n., 2016]. - 7434]

Congresso Nazionale Società Italiana di Igiene (SITI) (49. : Napoli : 16-19 Novembre 2016)

La salmonellosi, come riportato nel rapporto EFSA/ECDC del 2015, rappresenta un importante problema globale di sanita pubblica, essendo la pi0 comune causa di tossinfezione alimentare in molti Paesi del mondo e per il sempre piu frequente riscontro di ceppi antibiotico-resistenti. .- METODI La ricerca di Salmonella negli alimenti è una procedura di controllo prevista dalla normativa per la sicurezza degli alimenti. II metodo microbiologico classico fa riferimento alla procedura ISO 6579:2002/Cor1:2004. L'analisi di suscettibilita è stata effettuata con il metodo Kirby-Bauer. Dal 2010-2015, presso IZSLER, sono stati analizzati 2397 campioni di differenti matrici alimentari. RISULTATI Su 2397 alimenti esaminati, 2304 sono risultati negativi e 93 positivi per Salmonella enterica (3.87%). Su 44 ceppi è stata determinata l'attività inibente di 24 antibiotiche chemioterapici (tabella 1). Solo 9 antibiotici sono risultati attivi su tutti i ceppi saggiati (20.45%) mentre 6 delle 16 sierovarianti identificate sono risultate essere resistenti a 6 antibiotici (figura 1). Conclusioni. L'associazione fra contaminazione/infezione di matrici alimentari destinate al consumo umano ed II fenomeno dell' antibiotico-resistenza nel genere Salmonella assumono valenze di notevole preoccupazione per quanto riguarda ii futuro, avendo la possibilità di generare salmonellosi umane resistenti alle comuni terapie antibiotiche. Vi è dunque la necessita di sorvegliare attivamente le matrici alimentari e le loro filiere, sanzionando l'abuso dei farmaci anabolizzanti ed il correlato uso di antibiotici soprattutto nella zootecnia intensiva.

Ricchi°M, Savi°R, Bolzoni°L, Pongolini°S, Grant IR, De_Cicco°C, Cerutti°G, Cammi°G, Garbarino°CA, Arrigoni°N

Estimation of Mycobacterium avium subsp. paratuberculosis load in raw bulk tank milk in Emilia-Romagna Region (Italy) by qPCR

MicrobiologyOpen. - Vol. 5 no 4 (2016). - p 551-559.- 47 bib ref [Nr. Estr. 7243]

Consumption of milk and dairy products is considered one of the main routes of human exposure to Mycobacterium avium subsp. paratuberculosis (MAP). Quantitative data on MAP load in raw cows' milk are essential starting point for exposure assessment. Our study provides this information on a regional scale, estimating the load of MAP in bulk tank milk (BTM) produced in Emilia-Romagna region (Italy). The survey was carried out on 2934 BTM samples (88.6% of the farms herein present) using two different target sequences for qPCR (f57 and IS900). Data about the performances of both qPCRs are also reported, highlighting the superior sensitivity of IS900-qPCR. Seven hundred and eighty-nine samples tested MAP-positive (apparent prevalence 26.9%) by IS900 qPCR. However, only 90 of these samples were quantifiable by qPCR. The quantifiable samples contained a median load of 32.4 MAP cells mL-1 (and maximum load of 1424 MAP cells mL-1). This study has shown that a small proportion (3.1%) of BTM samples from Emilia-Romagna region contained MAP in excess of the limit of detection (1.5 × 101 MAP cells mL-1), indicating low potential exposure for consumers if the milk subsequently undergoes pasteurization or if it is destined to typical hard cheese production.

Rigamonti°S, Colmegna°S, Fedrizzi°G, Menotta°S, Pozzi°F, Torluccio°M, Invernizzi°A, Fabbi°M, Vicari°N

Nuovi approcci analitici per la rilevazione della tossina emetica di Bacillus cereus

XVII Congresso Nazionale SIDiLV : Pacengo di Lazise (VR), 28-30 Settembre 2016 : volume degli atti / [s.l. : Societa' Italiana Diagnostica di Laboratorio Veterinaria (SIDiLV), 2016]. - p 308-309. - 5 bib ref [Nr. Estr. 7376]

Congresso Nazionale Societa' Italiana Diagnostica di Laboratorio Veterinaria (SIDiLV) (17. : Pacengo di Lazise (VR) : 28-30 Settembre 2016)

Bacillus cereus is an ubiquitous microorganism that can cantaminated foods and causes food poisoning. It is the causative agent of two distinct food poisoning syndromes: the diarrheal and emetic IIInesses. This last one is due to an emetic toxin called cereulide which may give severe foodborne intoxication. In order to match the growing demand for fast and reliable de-tection of potentially toxinogenic Baclllus cereus, we developed a new qPCR assay targeting cereulide gene (ces) and a LC-MS/MS approach able to directly detect the toxin. For rice, the most Infected matrix, analytical sensitivities were 16 cfu per 25 g and 5 lig per kg for qPCR and LC-M5/M5, respectively.

Rubini°S, Barbieri S, D'Incau°M, Scullin°G, Bian chi°L, Russotto°C, Carrella°C, Govoni G, Bergamini M, Merialdi°G

Occurrence of Salmonella 4,[5],121 : in mollusks in Northern Italy and its antibiotic-resistance

Eur J Public Health. - Vol. 26 suppl 1 (2016). - p 418 [Nr. Estr. 7426]

European Public Health Conference (9th : Vienna, Austria : 9 - 12 November 2016)

The research of Salmonella sp. in shellfish harvesting areas is mandatory in all European MS for shellfish harvested in class A areas. The Shellfish Monitoring plan in Emilia Romagna has been implemented since 1997. S. enterica serovar 4,[5],12±—, which is a monophasic variant of S. Typhimurium, is becoming a serious public health problem in Europe. It is listed between the ten most common Salmonella serovars isolated from humans in the European countries. It has been isolated from pork, poultry, beef and vegetables. Methods Since 1997 have been analyzed a total of 10762 samples. It was applied ISO method. Serotyping was performed by using commercial antisera. Antibiotic-resistance has been carried out according to Kirby-Bauer method. Results In the study area S. enterica serovar 4,[5],12:i:— was isolated for the first time in 2004 and 2009 in seawater and in molluscan shellfish respectively. Its isolation increased further and, from 2004 to 2015 22 Salmonella enterica serovar 4,[5],12:i:— have been isolated from seawater and 5 from mollusks. The susceptibility to antibiotics has been tested for 27 serovars against. 23 antibiotics belonging to the classes of aminoglyco¬side antibiotics, chloramphenicol and derivated, cephalospor¬ins, quinolones, penicillins, polymyxin, sulfonamides, tetracyclines, P-lactam antibiotic, and P-lactamase inhibitor. 14 out of 27 (51,8%) strains showed a resistance to six or more antibiotics; 2 strains show resistance to 3 drugs; 2 strains show resistance to 2 drugs; 7 strains showed resistance to 1 drug, and only 2 strains were sensitive to all the antibiotics tested. Conclusions Mollusks are not the most important source of Salmonella infection in humans but the increasing isolation of Salmonella enterica serovar 4,[5],12:i:— in these products should not be ignored. The widespread habit of eating raw or undercooked mollusks is a hazardous behaviour that increases tremendously the public health concerns.

Rubini°S, Barbieri S, Menotta°S, Boschetti L, Can gini M, Pigozzi S, E. Ricciardi E, Pompei M, Milandri A

Occurrence of okaidates in clams harvested in Northern Italy

Toxicol Lett. - Vol. 258 Suppl (2016). - p S171 [Nr. Estr. 7386]

Congress of the European Societies of Toxicology (EUROTOX) (52nd : Fibes Congress Center

Seville, Spain : 04th-07th September 2016)

Okaidates are lipophilic toxins produced by microalgae of the genera Dinophysis, Prorocentrum and Phalachroma. Bivalve molluscs accumulate biotoxins because they are filter-feeding organisms. The ingestion of shellfish containing these biotoxins causes in humans a gastroenteric syndrome called DSP, Diarrhetic Shellfish Poisoning. Clinical signs are diarrhea, nausea, vomiting, and abdominal cramps. According to the European Legislation, the harvesting area must be monitored for the presence of marine biotoxins and only molluscs Chili peppers are commonly used for flavoring, seasoning, and imparting aroma or coloring the foods, and generally contaminated with aflatoxins. The reports on the inhibition of aflatoxigenic fungi and aflatoxin production and the oil content in spices are contradictory/ limited. The present study was aimed to determine the relation between the aflatoxin content and oil in the dried chili pepper. Aflatoxin (AF) residues was determined by HPLC-FD followed by an immunoaffinity column clean-up. Total oil content of peppers was estimated by Soxhlet using diethyl ether. From a total of 42 samples; AFB1 residues at the range of 0.45–48.33 ppb in 33 samples, AFB2 at the range of 0.14–3.62 ppb in 25 samples and AFG1 at the range of 0.44–0.80 ppb in 5 samples, were detected. AFG2 was not detected in any of the samples. In 4 samples; AFB1, B2 and G1, and in 21 samples; AFB1 and B2 residues were detected together. Total oil content of the samples were found as 7.8–22.8% (mean 15.3%). An increase of the total aflatoxin level (sum of AFB1, B2 and G1) was observed along with a decrease of the total oil content (r =-0.460, P = 0.002). Even though this relation was insignificant for AFG1, significant results were found for AFB2 (r =-0.339, P = 0.028) and AFB1 (r =-0.466, P = 0.002). These findings resemble previous studies indicating the negative correlation between the spice oil content and AF relation, and we are expanding our study on the capsaicin content and the oil–aflatoxin relation in dried chili peppers.

Rubini°S, Galletti°G, Boschetti L, Berardelli C, Lanni L, Cozzi L, Suffredini E

Studio sull'efficacia della depurazione di CDM a ciclo aperto e a ciclo chiuso

Atti del V. Convegno Nazionale SIRAM Società Italiana di Ricerca Applicata alla Molluschicoltura "Le misure comunitarie per lo sviluppo della molluschicoltura" : Roma, 10-11 Novembre 2016 / [s.l. : s.n., 2016]. - p 47-48. - 4 bib ref [Nr. Estr. 7449]

Convegno Nazionale Società Italiana di Ricerca Applicata alla Molluschicoltura (SIRAM) (5. : Roma : 10-11 Novembre 2016)

Le zone di produzione di molluschi bivalvi sono suddivise in classi sanitarie sulla base della contaminazione di Escherichia coil e i molluschi provenienti da zone di classe B, prima della immissione sul mercato, devono essere sottoposti a depurazione presso Centri di Depurazione Molluschi (CDM) autorizzati. L'efficacia della depurazione dei molluschi bivalvi dipende da numerosi fattori, tra cui la tecnologia utilizzata, ma gli studi sistematici a riguardo sono limitati, poiche non comprendono specie molto importanti per alcune produzioni locali, quali ad esempio la vongola verace (Ruditapes philippinarum), la specie più allevata nel delta del Po, o perchè non rispecchiano le reali condizioni operative adottate nei CDM, essendo approntati in impianti sperimentali [1,3,4]. Obiettivo principale del presente lavoro è stata la valutazione della capacita depurativa della vongola verace in CDM con circuiti a ciclo aperto e a ciclo chiuso.

The effectiveness of the purification of bivalve molluscs depends on many factors, including the technology used, but systematic studies in this regard are limited, and do not include relevant species as the Manila clam, the most important bivalve harvested at the delta of the Po river. The main purpose of this study was to evaluate the efficacy of two different types of depuration systems (open and closed-circuit). Our results show the efficacy of the decontamination of both types of systems.

Rugna°G, Franzini°G, Baldi°D, Bergamini°F, Gatt uso A, Morganti°M, Naldi°S, Pongolini°S, Losio°N, Carra°E, Merialdi°G

Listeria monocytogenes prevalence, contamination pattern, and antibiotic resistance in two pork slaughter and cutting plants

24th International Pig Veterinary Society (IPVS) Congress, 8th European Symposium of Porcine Health Management : 7th-10th June, 2016 Dublin, Ireland : abstracts book / [s.l. : s.n., 2016]. - 1 p (poster PO-PW1-298) [Nr. Estr. 7617]

International Pig Veterinary Society Congress (IPVS) : 24th European Symposium of Porcine Health Management : 8th : Dublin, Ireland : 7th-10th June, 2016)

Introduction: The prevalence of Listeria monocytogenes (Lm) in slaughtered pigs and the contamination pattern during the early stages of ham processing chain were evaluated in two abattoirs and annexed cutting plants. Materials and Methods: Tonsils, faeces, ileocecal limph nodes (ICL) were collected from 285 carcasses. Environment and equipment samples were collected from slaughter area (SA), cutting area (CA), chill room (CR) and trimming area (TA). Samples were also collected from hams after cutting (HAC), hams after cooling and before trimming (HBT), hams before curing (HBC). The isolates were subtyped by PFGE and Minimum Inhibitory Concentrations (MICs) were also determined by microdilution, using a commercial kit (17 antibiotics). Results: Lm has been isolated in 3.5 % (IC 95%: 1.7%>6.3%) tonsils, 0.7% (IC 95%: 0.1%>2.5%) faeces and 3.5% (IC 95%: 0.1%>8.7%) ICLs. Overall 10 pulsotypes were detected. Plant A: Lm has been recovered in 1/36 (2.8%) samples in CA and 33.3% in TA. Lm has never been recovered from hams. PFGE detected 8 pulsotypes, only one detected two times. Plant B: Lm has been detected in 1/30 (4.4%) sample in SA (splitting saw). 42.5% samples in CA and 50% in TA. Lm has been isolated in 4/10 pools, 8/10 pools and 23% of HAC, HBT and HBC, respectively. Seven pulsotypes have been detected with 3 being predominant and persistent. All isolates were susceptible to beta-lactams. In addition to the low susceptibility to daptomycin, ceftriaxone and clindamycin. resistance to sulfamethoxazole-trimethoprim (SXT) (3.0%), tetracycline (3.0%), erythromycin (1.5%) and fluoroquinolones (0.8%) was observed. Conclusion: Lm has been isolated from environment in both the plants with different prevalence and this reflects in a higher risk of ham contamination, as observed in B. In this plant an increasing prevalence and genetic homogeneity of Lm strains was observed throughout the processing steps. Probably the high environment and equipment contamination in CA is the origin of cross-contamination between surfaces and fresh hams and vice-versa, with a subsequent spread and adaptation of strains downstream the processing chain. Previous studies showed the minor role of the direct carry-over of Lm from pig to end-product. Lymphatic organs could be an important source of Lm introduction in the cutting plant, as evidenced by the detection of a persistent CA pulsotype from ICLs and saw in the plant B. However this study highlights the importance of environmental Lm persistence. No resistance was observed to the common antibiotics used in early listeriosis therapy; it is noteworthy the detection of resistant strains to SXT, used as second-choice antimicrobial.

Sangiorgi°E, Pellegrini°E, Piccinelli°EC

GC-MS determination of cyclopropane fatty acids to assess beef quality

40th International Symposium on Capillary Chromatography and 13th GCxGC Symposium : May 29 - June 03, 2016, Riva del Garda, Italy : abstract book / edited by L. Mondello and P. Dugo. - [Messina : Chromaleont Srl, 2016]. - p 485 (P.32) [Nr. Estr. 7271]

International Symposium on Capillary Chromatography : 40th GCxGC Symposium : 13th (13th : Riva del Garda, Italy : May 29 - June 03, 2016)

The quality of meat is an important matter for farmers and consumers and it depends on several factors, particularly health, farming and dietary conditions. These factors affect the meat composition, particularly the lipid components and, among them, the fatty acids whose profile is related to feed consumption. In fact it is possible to distinguish milk and cheese derived from cows fed with or without ensilage throw the presence/absence of a class of fatty acids, the cyclopropane fatty acids that are formed from unsaturated fatty acids to favor the stress tolerance of bacteria of Lactobacillus type during ensilaging. The main cyclopropane fatty acids are lactobacillic (C19 cyc 11) and dehydrosterculic acid (C19 cyc 9) and are formed with a methylation of the double bond of oleic and vaccenic acid. Aim of this work was to check the chemical features of the meat produced under

different feed regimes and to explore the possibility to differentiate the beef of calves fed with grass silage from the beef of calves fed with ensilage using the presence of cyclopropane fatty acids presence as the marker of ensilage feeding. Different type of fat extraction and transesterification methods are discussed as well as different chromatographic conditions to have the cyclopropane fatty acids peaks not interfered.

Schuhfried E, Sanchez_del_Pulgar SJ, Bobba°M, Piro R, Cappellin L, Maerk TD, Biasioli F

Classification of 7 monofloral honey varieties by PTR-ToF-MS direct headspace analysis and chemometrics

Talanta. - Vol. 147 (2016). - p 213-219. - 52 bib ref [Nr. Estr. 7076]

Honey, in particular monofloral varieties, is a valuable commodity. Here, we present proton transfer reaction-time of flight-mass spectrometry, PTR-ToF-MS, coupled to chemometrics as a successful tool in the classification of monofloral honeys, which should serve in fraud protection against mispresentation of the floral origin of honey. We analyzed 7 different honey varieties from citrus, chestnut, sunflower, honeydew, robinia, rhododendron and linden tree, in total 70 different honey samples and a total of 206 measurements. Only subtle differences in the profiles of the volatile organic compounds (VOCs) in the headspace of the different honeys could be found. Nevertheless, it was possible to successfully apply 6 different classification methods with a total correct assignment of 81–99% in the internal validation sets. The most successful methods were stepwise linear discriminant analysis (LDA) and probabilistic neural network (PNN), giving total correct assignments in the external validation sets of 100 and 90%, respectively. Clearly, PTR-ToF-MS/chemometrics is a powerful tool in honey classification.

Spelta°C, Bianchini V, Romanò°A, Malsano°AM, Ber tasi°B, Tilola°M, Scavia G, Morabito S, Vitali AM, Arghittu M, Dodaro A, Picicco D, Ardissino G, Luini°M

Caratterizzazione molecolare di ceppi VTEC VTX2-positivi bovini e umani : tecniche a confronto

XVII Congresso Nazionale SIDiLV : Pacengo di Lazise (VR), 28-30 Settembre 2016 : volume degli atti / [s.l. : Societa' Italiana Diagnostica di Laboratorio Veterinaria (SIDiLV), 2016]. - p 43-44. - 4 bib ref [Nr. Estr. 7359]

Congresso Nazionale Societa' Italiana Diagnostica di Laboratorio Veterinaria (SIDiLV) (17. : Pacengo di Lazise (VR) : 28-30 Settembre 2016)

Fifty-six VTEC strains positive for vtx2-eae, isolated in 2013-2016 in Lombardy Region from bovine feces and patients suffering from hemorrhagic colitis or hemolytic uremic syndrome, were typed. Two genotyping techniques, RAPD and PFGE have been used. The majority of the bovine strains didn't belong to any of the 13 serogroups investigated. Human strains mainly belonged to the top-five serogroups. A great variability of RAPD and PFGE profiles was Identified. The analysis of the bovine strains showed that one profile per farm prevailed. When the comparative analysis was limited to the human strains, the degree of similarity of the profiles obtained by both methods was compatible with events of inter-human transmission or a common source of infection, and a case due to the consumption of a contaminated bovine cheese was revealed. Although PFGE Is the gold standard, RAPD Is an easy and low-cost analysis that would be suitable for strains comparison and epidemiological investigations.

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Escherichia coli produttori di tossine di Shiga nella filiera suina

La gestione della sicurezza alimentare e i controlli ufficiali : nuovi approcci e tendenze in ambito nazionale e comunitario : XXVI Convegno Nazionale Associazione Italiana Veterinari Igienisti (AIVI) : Isola di Salina, Messina,14-16 Settembre 2016 : abstract book / [s.l. : s.n., 2016]. - p 20 (Poster P007) [Nr. Estr. 7346]

Convegno Nazionale Associazione Italiana Veterinari Igienisti (AIVI) (26. : Isola di Salina, Messina : 14-16 Settembre 2016)

L'elevata diffusione di fattori di patogenicità di Escherichia coli produttori di tossine di Shiga (STEC) in alimenti di origine suina rilevata nel corso del Piano Alimenti 2012-13 della Regione Emilia Romagna ha evidenziato la necessità di approfondire il ruolo della specie suina come possibile serbatoio di STEC. Tra agosto 2015 e marzo 2016 sono stati raccolti 58 campioni di contenuto cecale di suini provenienti da 13 allevamenti situati nelle province di Bologna, Modena, Reggio Emilia, Rovigo, Cuneo, Brescia, Mantova. La presenza di STEC è stata inoltre indagata su 69 matrici alimen¬tari di origine suina prelevate sul territorio regionale nel corso del 2015. La ricerca degli STEC è stata effettuata secondo le norme ISO 13136:2012-EURL VTEC Method 04 Rev1. Dei 58 campioni di contenuto cecale esaminati, 50 (86,2%) sono risultati positivi per la presenza del gene stx2, 2 (3,5%) per la presenza del gene stil, nessuno per entrambi; in 42 (72,4%) di questi tali geni sono risultati in associazione con il gene eae. Da 3 campioni risultati positivi al solo gene stx si è proceduto alla ricerca unicamente del siero-gruppo 0104, da 19 campioni risultati positivi a stx e eae si è pro¬ceduto alla ricerca di tutti i 6 sierogruppi. Il sierogruppo rilevato con maggior frequenza è risultato 1'0145 (14/19; 73,7%), seguito dai sierogruppi 0103 (13/19; 68,4%), 026 (12/19; 63,2%), 0157 (10/19; 52,6%), 0104 (7/22; 31,8%) e 0111 (5/19; 26,3%). I campioni presentano positività multiple nei confronti dei geni associati ai sierogruppi testati: il 73,7% risulta positivo ad almeno due sierogruppi, 52,6% ad almeno tre, 47,4% ad almeno quattro, 36,8% ad almeno cinque, mentre 21,1% dei campioni è risultato positivo a tutti i sei sierogruppi testati. Sono stati isolati 6 ceppi di STEC (stil o stx2), 2 ceppi di E. coli caratterizzati dalla sola pre¬senza del gene eae, 8 ceppi di E. coli appartenenti ad uno fra i sie¬rogruppi testati ma privi di fattori di virulenza. Delle 69 matrici ali-mentari esaminate, sono risultati potenzialmente contaminati da STEC 16 campioni (23,2%), di cui 11(15,9%) contaminati da STEC in presenza del gene eae. Il sierogruppo rilevato con maggior fre¬quenza è risultato 0157 (9/11; 81,8%), seguito da 0145 (8/11; 72,7%), 026 (7/11; 63,6%), 0103 (6/11; 54,6%), 0111 (1/11; 9,1%), 0104 (0/16). Come precedentemente rilevato i campioni presentano positività multiple nei confronti dei geni associati ai sie¬rogruppi testati: il 56,3% risulta positivo ad almeno due sierogrup¬pi, il 25,0% ad almeno tre sierogruppi, il 6,3% ad almeno quattro sierogruppi, nessuno è risultato positivo a 5 o 6 sierogruppi. In 4 campioni è stato raggiunto l'isolamento del ceppo STEC (25,0%) sempre caratterizzato dall'assenza del gene eae. A fronte delle numerose positività multiple, sono stati isolati ceppi STEC con il solo fattore di virulenza stx oppure ceppi di E. coli appartenenti ad un sierogruppo non caratterizzati dalla presenza di altri fattori di virulenza. Questo studio conferma l'elevata diffusione nella filiera suina dei fattori di virulenza e dei sierogruppi testati. Dai dati dispo¬nibili non si può escludere che il suino abbia un ruolo significativo come serbatoio di STEC. Sebbene non siano stati isolati ceppi rico¬nosciuti in grado di provocare nell'uomo episodi gravi di malattia quale la sindrome uremico emolitica, studi più approfonditi sono necessari per definire il ruolo del suino nell'epidemiologia delle patologie da STEC nell'uomo.

Vallino_Costassa E, Iulini B, Mazza M, Acutis P, Maurella C, Meloni D, Pautasso A, Capucci°L, Bozzetta E, Simmons MM, Zanusso G, Pocc hiari M, Corona C, Casalone C

Pathogenesis and transmission of classical and atypical BSE in cattle

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Many mammalian species can be affected by prion diseases, also known as transmissible spongiform encephalopathies (TSEs). "Classical" bovine spongiform encephalopathy (C-BSE) was the first prion disease recognized in cattle and it is the only known zoonotic prion disease, having caused variant Creutzfeldt-Jakob disease (vCJD) in humans. Based on the biochemical signatures of disease-associated prion protein (PrPse), two distinct forms of atypical bovine spongiform en¬cephalopathies (H-BSE and L-BSE) have been distinguished from C-BSE since 2004. To date there is no comprehensive information about the origin of atypical BSEs (sporadic vs. acquired) and this has an influence on the interpretation of the knowledge gathered from experimental studies, regarding how well such models may represent the real distribution of the agent in the body of naturally affected animals. Moreover, there are only very limited data available concern¬ing the pathogenesis of both atypical BSE forms, as compared to C-BSE. Thus, precautions that are presently taken to minimize the risk of prion contamination of the food supply might not be as effective at preventing the spread of these recently recognized strains. In the last few years a wide range of experimental transmission studies of atypical strains in different animal hosts have been performed. The most recent data on classical and atypical BSE studies concerning characteristics, pathogenesis and transmissions in cattle will be summarized in this review.

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Characterization of fatty acids in bulk tank milk of dairy herds from Valle Camonica, a mountain zone in Lombardy Region, Italy

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World Buiatrics Congress (WBC) (29th : Dublin, Ireland : 2016)

Objectives: Aim of this survey has been to characterize and evaluate satured (SAT), unsatured (UNSAT), monounsatured (MONO), polyunsatured (POLY) fatty acids by Fourier Transform Infrared spectroscopy (FTIR) of the bulk tank milk collected from a representative sample of dairy herds located in a mountain area in province of Brescia, Lombardy region. The average fatty acid milk composition of 37 grazing dairy herds selected was compared with the detected one of 54 dairy herds feeding with uni-feed in flat lands. Materials and Methods: Thirty seven dairy herds for 492 lactating cows, mainly Brown Alpine and Red Piebald, were selected on their feeding based mainly on hay, supplementary feed, without silage maize (October-May) and on the grazing in summer period (June-September). These were small size herds (average 12 heads) producing cheeses for self-consumption and/or direct sale. A questionnaire was realized and filled in order to determine the main features of the farms, particularly the feeding composition. Three alpine pastures were visited and followed up during summer mountain grazing. From April to August 2015 refrigerated bulk tank milk samples (BTMS) from all the selected herds were tested before (April-May) and during (June-July) the grazing season twice a month, for a total of 189 samples.Fat, protein, lactose, casein were analyzed by FTIR spectrometry MilkoscanFT6000® (Foss, DK) with management software Foss Integrator®. Calibration curves developed by producer for SAT, UNSAT, MONO, POLY fatty acids were recalibrated and validated with gas chromatography by our laboratory using milk samples from regional herds.Data were processed by univariate analysis using IBM SPSS STATISTICS 22.0. Results: The mean values for fat, protein and casein detected on 37 dairy herds were, respectively, 4.15 g/mL (SD 0.602), 3.37 g/mL (SD 0,229), 2.64 g/mL (SD 0.185) with a casein/protein ratio of 0.783 (SD 0.007). SAT, UNSAT, MONO, POLY mean values were, respectively, 2.569 g/100g (SD 0.404), 1.233 g/100g (SD 0.272), 1.129 g/100g (SD 0.248), 0.150 g/100g (SD 0.040). The class of major frequency for SAT and UNSAT was 2.7 g/100g (1.9- 3.65) and 1.2 g/100g (0,95-2,45). Comparing the results on milk produced in tie-stalls located in valley (April-May) vs summer pastures (June-July) mean values of fat increased from 4.01 to 4.35/100g, despite of the adaptation to the pasture, probably compensated by a better animal welfare. It is interesting to remark that UNSAT-SAT mean ratio on 189 BTMS increased from 0.42 to 0.57 g/100g ($p < 0.05$) during the grazing period. MONO and POLY mean values increased, respectively, from 1.00 to 1.28 g/100g and from 0.12 to 0.17 g/100g ($p < 0.05$). The 37 dairy herds grazing dairy herds were also compared with 54 intensive dairy herds located in flat area during the same period, in order to evaluate variation in fatty acid composition, depending on the type of feeding. Fat mean value was

slightly different (4.01 vs 3.96g/100g), while UNSAT-SAT mean ratio, 0.57 vs 0.44 g/100 g, resulted quite different ($p<0.05$). Conclusions: The survey confirms the close positive relationship between the grass feeding on summer alpine pastures and fatty acid composition in the milk, that are significantly higher than in fall-winter season. There is the evidence that milk produced using grazing pastures is characterized by UNSAT-SAT mean ratio higher than dairy herds in flat territory using uni-feed. Particularly, UNSAT-SAT mean ratio can represent an important index to evaluate the milk quality oriented to the cheese production and to qualify the nutritive value of the typical dairy products.