RICERCHE EFFETTUATE

IGIENE DEGLI ALIMENTI AD USO UMANO

Accurso° D, Cannavacciuolo° A, Fedrizzi° G

L’esame ispettivo degli alimenti come strumento di valutazione delle segnalazioni dei cittadini : casi reali e suggestioni

Ital J Food Safety. - Vol. 3 suppl 1 (2014). - p 24 (C49) [Nr. Estr. 5803]

Convegno Nazionale Associazione Italiana Veterinari Igienisti (AIVI) (24. : Bologna : 10-12 settembre 2014)

L’opinione pubblica negli ultimi anni ha dimostrato sempre maggiore interesse alla sicurezza alimentare. La salubrità del prodotto, oltre ad essere concepita come corretto e bilanciato apporto di nutrimento, è considerata anche come qualità delle materie prime, qualità di preparazione e conservazione del prodotto, qualità nell’aspetto organolettico. L’alimento visto nel complesso delle sue diverse preparazioni ha assunto un ruolo centrale nel quotidiano di molti individui e inevitabilmente ha conquistato l’attenzione dei molti anche con i recenti fatti di cronaca alimentare. Questi ultimi hanno sensibilizzato il consumatore e lo hanno spinto sempre più spesso a rivolgersi agli organi ufficiali (NAS, AUSL, etc.) o al laboratorio per sospette alterazioni e adulterazioni accidentali o dolose di alimenti. I diversi casi di esame ispettivo che hanno interessato il Reparto Chimico degli Alimenti di Bologna eseguiti negli ultimi 4 anni sia su alimenti di origine animale e vegetale, sia su acqua, polveri, liquidi e sostanze anonime, mostrano due diverse prospettive: da una parte vi è un ingiustificato timore del consumatore davanti a influenze mediatiche, sociali o psicologiche, dall’altra parte vi sono segnalazioni fondate che hanno permesso di evitare o limitare conseguenze più gravi sul piano della sicurezza alimentare. La trattazione dell’argomento comprenderà alcuni casi di alterazioni alimentari segnalati dai consumatori; alcuni sono stati giudicati come infondati, altri come reali pericoli. La documentazione fotografica a supporto di questi mostrerà le immagini più esemplificative dei casi rappresentativi.

Amato E, Tilola° M, Losio° MN, Riva A, Pontello MM

Molecular subtyping of human and food-environmental Listeria monocytogenes isolates in northern Italy (2012)

Industrial, medical and environmental applications of microorganisms : current status and trends : proceedings of the V International Conference on Environmental, Industrial and Applied Microbiology (BioMicroWorld2013) : Madrid, Spain, 2-4 October 2013 / edited by Antonio Mendez-Vilas. - Wageningen : Wageningen Academic Publishers, 2014. - p 331-336. - 10 bib ref [Nr. Estr. 5860]

International Conference on Environmental, Industrial and Applied Microbiology (BioMicroWorld2013) (5th : Madrid, Spain : 2-4 October 2013)

Human invasive listeriosis is a relatively rare (0.32 cases per year per 100,000 inhabitants in EU) but life threatening foodborne disease, with high hospitalization and fatality rates (>90% and 20-30% respectively) in vulnerable populations. The aims of this study were to assess the molecular clustering of Listeria monocytogenes isolates by using pulsed-field gel electrophoresis (PFGE) and to evaluate phylogenetic correlation of human and food isolates in 2012 in Lombardy, the largest northern Italy region (about 10 million inhabitants), in order to activate an integrated laboratory-based surveillance network and strengthen the surveillance system of human listeriosis cases. This pilot study shows preliminary data in order to identify the main pulsotypes and the foods potentially involved in listeriosis cases in the Lombardy region. The results revealed the need to implement an integrated surveillance system, through the improvement of sampling criteria in foods of the whole area under study and strengthen the surveillance system of human cases..

Angelone°B, Bertocchi°L, Ferretti°E, Anelli S, S ale VM, Lorenzi°V

Sunflower plant as bioremediator : preliminary study

Dioxin : 34th International Symposium on Halogenated Persistent Organic Pollutants : August 31st - September 5th 2014 Madrid, Spain : program book / editor in chief, Begoña Jiménez. - [s.l. : s.n.], 2014. - 1 p (Poster 1013). - 5 bib ref [Nr. Estr. 5838]

International Symposium on Halogenated Persistent Organic Pollutants (34th : Madrid, Spain : August 31st - September 5th 2014)

Bioremediation is a natural process used to decrease soil contamination. One of the methods consists in increasing the microbial activity introducing potentially useful microorganisms in situ, in order to reduce contaminants concentration. Other ways for natural decontamination are the use of specific substances able to catalyze microbial activity or the cultivation of specific plants capable to accumulate toxic substances. This last technique has been studied by Kadlkovà. L. et al. which investigated the capability of some plants (corn, sunflower, poplar and willow) to decrease the level of polychlorinated biphenyls (PCBs) in soil, supposing different and selective accumulation for specific plants'. Another study draws attention to the ability of perennial plant roots, such as sunflower roots, to release phenols in soil, substances able to promote the growth of PCB¬degrading bacteria2. Other authors3 investigated the tendency of different plants (barley, corn and sunflower) to accumulate PCBs from soil and they observed a higher concentration of PCBs (six indicators) in sunflower plants, due to their higher fat content. Since the mentioned literature data suggests a possible role of sunflower in the removal of PCB from contaminated soil, the present study, carried out in Brescia (Northern Italy), aims to investigate the use of this plant as bioremediator in a PCB contaminated area. The study started in June 2013 and will end in October 2014, alter two sunflower cultivation cycles. The levet of contamination of an agricultural soil (3700 m2) located in Brescia, a high risk area, was investigated. Before sunflowers sowing, sub-samples of soils were collected from 6 points at two different depths (0-30 cm and 30-60 cm), obtaining one composite sample of soil for each depth level. Sunflower samples were collected at complete maturation: roots, stalks, leaves and seeds were separately sampled to evaluate and compare pollutants presence and distribution. Soil and vegetable specimens were prepared and analyzed by certified laboratories, employing US EPA Method 1613/B 19944 and US EPA Method 1668/C 20105. In both soil and vegetable samples, the seventeen "toxic" PCDD/Fs congeners, the twelve DL-PCBs and the six PCB indicators were quantified. Among sunflower specimens, the highest levels of PCDD/Fs and PCBs were detected in roots and leaves samples (Table 1).(nin riprodotta) Table 1. Concentration of PCDD/Fs, DL-PCBs and 6 NDL-PCBs indicators in the investigated samples. Samples contamination profiles were correlated using Pearson's r. The strongest correlation (r=1) was found between the composite soil samples (0-30 cm and 30-60 cm). Comparing sunflower parts and soil, the highest correlation was obtained for roots(r=0.95), the lowest for leaves (r=0.55). Concentration profile of the roots sample seems influenced by soil, while the high level of pollutants found in leaves, could be influenced by atmospheric deposition. The study is stili in progress, soil contamination will be investigated again at the end of two sunflowers cultivation cycles, in order to evaluate differences in soil contaminants profile and concentration and to understand if sunflower plant could be efficiently use as bioremediator. Finally, contamination profile of leaves sample will be compared to Brescia air profile to clarify the role of atmospheric deposition.

Arrigoni°N

Paratubercolosi : un problema di sicurezza alimentare? Applicazione delle "Linee Guida per l'adozione dei piani di controllo e per l'assegnazione della qualifica sanitaria degli allevamenti nei confronti della paratubercolosi bovina"

Ital J Food Safety. - Vol. 3 suppl 1 (2014). - p 1-2 (W03) [Nr. Estr. 5800]

Convegno Nazionale Associazione Italiana Veterinari Igienisti (AIVI) (24. : Bologna : 10-12 settembre 2014)

La capacità di Mycobacterium avium subs. paratuberculosis (MAP), agente eziologico della

paratubercolosi dei ruminanti, di causare malattia nell'uomo è stata ipotizzata da molto tempo in relazione alla malattia di Crohn e, più recentemente, ad altre patologie umane (diabete di tipo I e sclerosi multipla). Ad oggi non è stato stabilito un rapporto causale certo tra MAP e malattia nell'uomo, anche se è stata dimostrata una significativa associazione tra presenza di MAP e patologia umana. In campo zootecnico, numerose indagini su vasta scala condotte in vari Paesi indicano che la Paratubercolosi è oggi diffusa in tutto il mondo, con dati di prevalenza apparente di allevamenti infetti variabile fra il 7 e il 60%. Data l'ampia diffusione dell'infezione nel patrimonio zootecnico, l'esposizione della popolazione umana a MAP attraverso varie fonti alimentari (latte e derivati, carni, acqua) è stata ampiamente dimostrata. A causa dell'elevata resistenza di MAP, i trattamenti chimico-fisici volti al risanamento degli alimenti e delle acque non sono completamente efficaci nell'inattivare MAP; a tale proposito, diversi studi hanno dimostrato che la probabilità di contaminazione del prodotto finito è funzione del livello di contaminazione iniziale della materia prima. A ciò si aggiunga che alcuni Paesi terzi (India, Cina, Russia) hanno richiesto all'Italia garanzie sanitarie specifiche nei confronti di questa patologia, relativamente a prodotti lattiero caseari esportati. Per tutti i motivi sopraelencati, il Ministero della Salute ha richiesto al Centro di Referenza Nazionale la stesura di una proposta operativa d'intervento, con l'obiettivo primario di dare supporto alle certificazioni necessarie per l'esportazione dei prodotti alimentari, in particolare lattiero-caseari, cogliendo l'occasione per sensibilizzare gli allevatori all'adozione di misure atte a ridurre la diffusione della paratubercolosi sul territorio italiano. L'iter di stesura e discussione si è concluso con la pubblicazione in Gazzetta Ufficiale del 19.11.2013 delle Linee Guida per l'adozione dei piani di controllo e per l'assegnazione della qualifica sanitaria degli allevamenti nei confronti della Paratubercolosi bovina.

Bardasi° L, Taddei° R, Nocera L, Ricchi° M, Meriald i° G

Monitoraggio sulla presenza di Escherichia coli produttori di Verocitotossine nella Regione Emilia Romagna : risultati del Piano Regionale Alimenti 2012-2013

Ital J Food Safety. - Vol. 3 suppl 1 (2014). - p 32 (P21) [Nr. Estr. 5802]

Convegno Nazionale Associazione Italiana Veterinari Igienisti (AIVI) (24. : Bologna : 10-12 settembre 2014)

Nell'ambito del Piano Alimenti 2012-2013 della Regione Emilia Romagna, è stato introdotto il monitoraggio di E. coli verocitotossico (STEC) in diverse categorie di alimenti. Sono stati esaminati 689 campioni di carne e derivati e 273 campioni di frutta e ortaggi pronti al consumo, semi e semi germogliati. Le analisi sono state condotte tramite metodo ISOTS 13136. Il campione pre-arricchito è stato sottoposto a PCR real time per i geni codificanti Shigatossina 1 e 2 (stx1 e stx2) e per il gene eae. I campioni positivi per il gene stx2 sono stati testati per la presenza del gene associato al sierogruppo O104; i campioni positivi per presenza del gene stx1 e/o stx2 e del gene eae sono stati testati per i geni caratterizzanti i sierogruppi O157, O26, O111, O145, O103. Sui campioni risultati positivi ad un sierogruppo è seguita la fase microbiologica finalizzata all'isolamento del microrganismo. Nei campioni positivi alle fasi di rilevamento in PCR RT dai quali non è stato isolato il microrganismo, la presenza di E. coli STEC è stata considerata presuntiva. Fra i 689 campioni di carne 34 (4,9%) sono risultati positivi per i geni stx1 e/o stx2 e 46 (6,7%) per i geni stx1 e/o stx2 in associazione al gene eae. Quarantacinque (6,5%) campioni sono risultati positivi ad almeno un sierogruppo. In particolare i geni caratterizzanti i sierogruppi O103, O104, O111, O145, O157 ed O26 sono stati rilevati rispettivamente nell' 1,3, 0,3, 0,1, 3,9, 2,9 e 2,5% dei campioni; nello 0,6% dei campioni è stato isolato un ceppo di E. coli STEC (2 E. coli O103 eae +stx1+, 1 E. coli O157 eae+stx2+ed 1 E. coli O157 eae+sxt1+, stx2+). Fra queste tipologie di alimenti è degna di nota l'elevata frequenza di rinvenimento di fattori di patogenicità di E. coli STEC (19%) in insaccati freschi di origine suina. Fra i 273 campioni di vegetali, in 4 (1,5%) è stata rilevata la presenza dei geni stx1 e/o stx2 e in 1 (0,4%) la presenza dei geni stx1 e/o stx2 in associazione con il gene eae; nessuno è risultato positivo per i sierogruppi testati. L'isolamento del microrganismo tramite esame colturale, necessario per confermare la presenza dei geni di virulenza e di sierogruppo nella stessa cellula batterica, ha premesso di confermare un numero molto ridotto di campioni. Risulta pertanto fondamentale, al fine della gestione del rischio, una piena consapevolezza del significato del risultato analitico.

Bertasi°B, Dalzini°E, Galuppini°E

Development of bioactive food packaging on artificially contaminated, sliced food

European symposium on food safety : 7-9 May 2014 Budapest, Hungary / [s.l. : s.n., 2014]. - P3-15 [Nr. Estr. 5691]

European symposium on food safety : Budapest, Hungary : 7-9 May 2014)

Purpose: To evaluate the effect of plastic film activated with culture celi free to inhibit Listeria monocytogenes ATCC 19115 on the agar plate and on the cheese surface. Methods: The agar well method was used to evaluate the anti-listeria activity of cell free supernatant of L. lactis ATCC 11454 and CRA 26 grown in M17, MRS at 100% or at 25% of their standard concentrations plus milk. Films activated by spraying of twofold concentrated supernatant, were used to pack sliced cheese inoculated with L. monocytogenes and stored at 12℃ for 20 days. Results: Milk added to either M17 or MRS provided the highest levels of anti-listeria activity assayed (800 AU m1-1) for both L. lactis strains. A significant decrease of L. monocytogenes ATCC 19115 counts were observed in cheeses packed by films treated twofold concentrated supematant of L. lactis ATCC 11454 and CRA 26 (Tukey's test), with an average decrease of 2.11 and 2.13 log CFU erespectively, after 15 days of the storage. The activated films didn't cause changes on the indigenous lactic bacteria of the cheese. Significance: The use of films treated with bacteriocins represents a useful tool for the control of the development of pathogens in foods during storage.

Bertocchi°L, Zanardi°G, Varisco°G, Angelucci°A, Fusi°F, Donati°M, Lorenzi°V

Dioxins and PCBs contamination in bovine milk produced in a high risk area : on-field study

Proceedings of the XXVIII World Buiatrics Congress : Cairns, 2014 : oral communication and poster abstracts / editor, David S. Beggs. - Australia : Australian Cattle Veterinarians, 2014. - p 174-175 [Nr. Estr. 5782]

World Buiatrics Congress (WBC) (28th : Cairns : 2014)

Bianchini°V, Borella°L, Benedetti°V, Parisi A, M iccolupo A, Santoro E, Recordati C, Luini°M

Prevalence in bulk tank milk and epidemiology of Campylobacter jejuni in dairy herds in Northern Italy

Appl Environ Microbiol. - Vol. 80 no 6 (2014). - p 1832-1837. - 34 bib ref [Nr. Estr. 5667]

Thermotolerant Campylobacter spp. are frequently the cause of human gastroenteritis and have assumed more importance in Italy following the increased consumption of raw milk. Our objectives were to determine the prevalence and genotypes of Campylobacter spp. in dairy herds and to investigate the possible sources of bulk milk contamination. Bulk milk from dairy herds (n = 282) was cultured for Campylobacter spp. and Enterobacteriaceae. At three Campylobacter jejuni-positive farms, bovine feces, pigeon intestines, milk, and water points were also investigated. Isolates were identified by PCR and genotyped using multilocus sequence typing (MLST). C. jejuni was detected in 34 (12%) bulk milk samples. The strains belonged to 14 sequence types, and the most common clonal complexes were CC-21, CC-48, and CC-403. No association was demonstrated between the presence of C. jejuni and high levels of Enterobacteriaceae in bulk milk. At the three farms examined, C. jejuni was isolated from bovine feces (25/82 [30.5%]), pigeon intestines (13/60 [21.7%]), bulk milk (10/24 [41.7%]), and water points (4/16 [25%]). MLST revealed lineages that were common between milk and bovine feces but distinct between cattle and pigeons. In one herd, C. jejuni with the same genotype was isolated repeatedly from bulk milk and a cow with an udder infection. Our results showed a high prevalence of C. jejuni in bulk milk and suggested that udder excretion, in addition to

fecal matter, may be a route of bulk milk contamination. MLST analysis indicated that pigeons are probably not relevant for the transmission of C. jejuni to cattle and for milk contamination..

Bolzoni° G, Marcolini° A, Spelorzi° P, Fierro A

Panna da affioramento : da che latte è stata ottenuta?

Latte. - Vol. 88 no 10 (2014). - p 26-29 [Nr. Estr. 5942]

Bonardi S, Alpigiani I, Pongolini° S, Morganti° M, Tagliabue° S, Bacci C, Brindani F

Detection, enumeration and characterization of Yersinia enterocolitica 4/O:3 in pig tonsils at slaughter in Northern Italy

Int J Food Microbiol. - Vol. 177 (2014). - p 9-15. - 39 bib ref [Nr. Estr. 5662]

Tonsils from150 pigs slaughtered at 270 days or olderwere tested for Yersinia enterocoliticawith different cultural methods. Samples were collected in three different abattoirs of Northern Italy between April and November 2012 and were analysed by direct plating on cefsulodin–irgasan–novobiocin (CIN) agar and by enrichment procedures following the ISO 10273:2003 reference method. Twenty-three (15.3%) samples were positive: 22 tonsils (14.7%) were positive for human pathogenic Y. enterocolitica bio-serotype 4/O:3 and one tonsil (0.7%) for Y. enterocolitica bio-serotype 1A/7,8-8,8,19. Seventeen samples out of 23 (73.9%) were positive by direct plating method. Among the enrichment procedures, the best recovery rate (8 positives out of 23; 34.8%) was obtained by the two-day enrichment in peptone–sorbitol–bile (PSB) broth followed by plating on CIN agar plates. The two-day enrichment in PSB followed by potassiumhydroxide (KOH) treatment before plating onto CIN agar gave 7 positives out of 23 (30.4%), decreasing to 3 positives (13.0%) without KOH treatment. The worst results were obtained by prolonged (five days) enrichment in PSB, with or without KOH treatment, followed by plating on CIN agar: 4.3% (1 out of 23) and 0.0% recovery rates, respectively. The mean concentration was 1.9 × 104 CFU/g,with aminimumof 1.0 × 102 CFU/g and amaximum of 5.8 × 104 CFU/g, thus demonstrating that tonsilsmay play an important role in contamination of pluck sets, carcasses, and slaughterhouse environment. Prevalence of virulence genes among the Y. enterocolitica 4/O:3 isolates was as follows: 12/22 (54.5%) for yadA, 21/22 (95.5%) for ail, 21/22 (95.5%) for inv and 22/22 (100%) for ystA. All Y. enterocolitica 4/O:3 isolateswere sensitive to amoxicillin/clavulanic acid, ciprofloxacin and ceftazidime and resistant to ampicillin and cephalotin. High proportions of 4/O:3 isolates (95%) were sensitive to cefotaxime, gentamicin, kanamicin and nalidixic acid. High levels of resistance were observed to sulphonamide compounds (91%), streptomycin (64%) and chloramphenicol (55%).Multi-resistant isolateswere very common; resistance to three or more antimicrobials was observed in 91% (20/22) of 4/O:3 isolates. High level of resistance to chloramphenicol was possibly due to coresistance to tiamphenicol, which was detected in 100% of the isolates. XbaI-PFGE detected four clusters among the 22 Y. enterocolitica 4/O:3 isolates. The most represented accounted for 77% (17/22) of the isolates, the second most common was found in 14% (3/22) of the isolates and the two other profiles were observed in single isolates. The comparison with a selection of human isolates supported the role of the pig as reservoir of 4/O:3 Y. enterocolitica.

Bonilauri° P, Serraino A, Arrigoni° N, Ostanello F, Ricchi° M, Giacometti° F

Valutazione quantitativa del rischio di sopravvivenza di Mycobacterium avium ssp. paratuberculosis nel latte pastorizzato in tre stabilimenti lattiero-caseari in Italia

Ital J Food Safety. - Vol. 3 suppl 1 (2014). - p 14-15 (C26) [Nr. Estr. 5814]

Convegno Nazionale Associazione Italiana Veterinari Igienisti (AIVI) (24. : Bologna : 10-12 settembre 2014)

L’obiettivo del lavoro è stato di effettuare una valutazione quantitativa del rischio (QRA) di sopravvivenza di Mycobacterium avium ssp. paratuberculosis (MAP) nel latte alimentare pastorizzato prodotto in stabilimenti industriali. I dati sono stati raccolti in tre stabilimenti industriali (A, B e C) presenti in tre diverse regioni italiane che trasformano rispettivamente 38,75 (A), 89,29 (B) e 190,56 (C) milioni di litri di latte annuali; nello specifico, gli stabilimenti A e C producono latte pastorizzato, formaggi industriali molli e duri e yogurt, mentre l’impianto B solo latte pastorizzato. Campioni di filtri degli impianti di mungitura (ILMF) e/o di latte di massa (BTM) sono stati raccolti da tutti i 569 allevamenti che forniscono il latte ai tre stabilimenti lattiero-caseari. I campioni sono stati analizzati mediante real-time PCR quantitativa (qPCR). Il presente QRA ha considerato la presenza di MAP in ILMF e BTM di tutti gli allevamenti da latte che forniscono il latte ai tre stabilimenti lattiero-caseari indagati, stimando, sulla base di questi dati, la concentrazione di MAP nel latte crudo, l’effetto di diluizione dovuto alla miscelazione del latte nei camion di raccolta e nei silos di stoccaggio, e l’effetto della pastorizzazione nel ridurre la concentrazione di MAP. La frazione stimata di litri di latte pastorizzato con 0 MAP risulta rispettivamente pari a 99,02, 99,45 e 99,12% negli stabilimenti A, B e C, e una percentuale complessiva variabile tra 0,55 e 0,98% di latte pastorizzato con contaminazione da MAP>0 unità formanti colonia (CFU)/L ed infine tra 0,04% e 0,11% con contaminazione da MAP>100 UFC/L. Una variazione giornaliera è stata osservata nella proporzione dei litri di latte MAP-contaminati. Il presente studio dimostra come il latte negli stabilimenti investigati può essere una fonte di esposizione di MAP per l’uomo. La prevalenza apparente di MAP tra le aziende ed intra-aziendale nelle aree indagate risultano verosimilmente comparabili a quelle relative ad altre zone in Italia, Europa e Nord America, ed conseguentemente tali risultati sono applicabili anche ad altre aree geografiche.

Bruni R, Ciccaglione AR, De_Medici D, Alfonsi V, Busani L, Di_Pasquale S, Equestre M, Escher M, Ricotta L, Rizzo C, Scavia G, Taffon S, Tosti ME, Pompa MG, Martini V, Iannazzo S, Losio°MN, Varisco°G, P avoni°E, Massaro M, Cappelletti B, Noè P, Menghi A, Guizzardi S, Lena R, Plutino G, Monteleone D, Borrello S

Epidemia di epatite A in Italia associata a consumo di frutti di bosco surgelati

V Workshop Nazionale di Virologia Veterinaria : Teramo, 26-27 giugno 2014 : riassunti / a cura di Roberto Delogu ... [et al.]. - Roma : Istituto Superiore di Sanità, 2014. - (ISTISAN congressi ; 14/C3) p 21 [Nr. Estr. 5736]

Workshop Nazionale di Virologia Veterinaria (5. : Teramo : 26-27 giugno 2014)

Ai primi di maggio 2013 la Germania ha segnalato attraverso l'Epidemic Intelligence Information Systems (EPIS) e l’Early Warning and Response System (EWRS) sette casi di epatite A in turisti che avevano soggiornato nel Nord Italia. A seguito della segnalazione, il Sistema Epidemiologico Integrato delle Epatiti Virali Acute (SEIEVA) ha riportato un aumento di casi di epatite A nella stessa area nel 2013. Dal sequenziamento di una porzione di genoma (VP1/2A) del virus dell’epatite A (HAV) si è accertato che i casi tedeschi e quelli italiani erano infettati da virus di genotipo IA con una identica sequenza, definita "sequenza outbreak" (Accession Number KF182323). Per monitorare i casi di epatite A in tutto il Paese e valutare le possibili fonti di infezione è stato istituita una task force interdisciplinare coordinata dal Ministero della Salute. Uno studio retrospettivo caso-controllo (119 casi, 419 controlli) ha indicato il consumo di frutti di bosco surgelati (OR 4.2, 95% CI 2,5-7,0) come possibile fonte di infezione. Le prove di laboratorio hanno rilevato la presenza di HAV in alcuni campioni di frutti di bosco surgelati con un metodo di nested PCR. Il sequenziamento di uno dei campioni positivi ha mostrato il 100% di identità con la “sequenza outbreak”. Allo scopo di individuare le possibili fonti di contaminazione HAV di frutti di bosco surgelati è stato inoltre avviato un esercizio di tracciabilità, coordinato a livello europeo. Dal 1°gennaio 2013 al 28 febbraio 2014 sono stati segnalati ai sistemi nazionali di sorveglianza un totale di 1.463 casi di epatite A. Ad oggi, sono state confrontate le sequenze da 357 casi italiani, che avevano i requisiti di sequenza stabiliti di concerto con l’ECDC. In 238 casi (66,7%) si è osservata una “sequenza outbreak”. Nei rimanenti casi si sono osservate sequenze di genotipo IA non correlate, oppure IB; un solo caso aveva genotipo IIIA. Al fine di prevenire la diffusione dell'epidemia, è stata effettuato il richiamo dei lotti di frutti di bosco surgelati risultati positivi per la presenza di HAV. Inoltre il Ministero della Salute ha

raccomandato attraverso il sito web di cuocere i frutti di bosco surgelati per 2 minuti prima del consumo. Le indagini svolte indicano i frutti di bosco surgelati come veicolo di infezione per questa epidemia. Recentemente altri sei paesi dell'Unione Europea hanno segnalato casi di HAV con la stessa “sequenza outbreak” con nessuna storia di viaggi in Italia.

Buffoli°E, Bolzoni°G

Alkaline phosphatase activity in cheese made with pasteurized milk

3rd European Association of Veterinary Laboratory Diagnosticians (EAVLD) Congress : Pisa (Italy), 12-15 October, 2014 : abstract book and final programme / [s.l. : s.n., 2014]. - p 210 - 5 bib ref [Nr. Estr. 5945]

European Association of Veterinary Laboratory Diagnosticians Congress (EAVLD) (3rd : Pisa (Italy) : October 12-15, 2014)

Cammi°G, Ricchi°M, Losio°MN, Savi°R, Cosciani_C unico°E, Arrigoni°N, Garbarino°C, Leo°S, Daminelli°P

Behavior of Mycobacterium avium subsp. paratuberculosis (MAP) during manufacturing and aging of Italian hard cheeses

12th International Colloquium on Paratuberculosis : Parma, Italy, 22/26 June 2014 : program and abstracts / [s.l. : s.n., 2014]. - p 209 (Oral O-07.5) [Nr. Estr. 5757]

International Colloquium on Paratuberculosis (ICP) (12th : Parma, Italy : 22/26 June 2014)

The aim of this study was to investigate the survival of MAP during the manufacturing and aging of Italian PDO cheeses (Parmigiano Reggiano and Grana Padano). These cheeses are produced with partially skimmed (through a natural creaming process) raw cow milk. The natural whey starter is added immediately before the curd heating at 53-56 ℃ for 30-70 min; then the cheese is ripened for 9-24 months. The study was conducted in two stages: a first initial evaluation of MAP behavior during the overnight creaming of the milk and a sec-ondary challenge test during cheese manufacturing and ripening. The natural creaming process was reproduced in laboratory, using raw bovine milk, spiked with a MAP reference strain (ATCC 19698, Log 5-6 CFU/ml), maintained for 12 h at 18 and 27 ℃. Samples of skimmed milk and cream- layer were collected for MAP enu-meration. Cheese was manufactured in an experimental cheese factory located in Mantua (Lombardy, Italy), according to traditional procedures. Semi-skimmed raw milk was experimentally contaminated (final estimated concentration Log 5-6 MAP CFU/ml of milk) and then poured into two traditional copper vats. The first vat was inoculated with ATCC 19698, while the second one, with three different MAP field isolates. MAP survival was monitored from the beginning of cheese manufacturing, continuing throughout the ripening period. Samples of milk, cream, homogenized curd and cheese were cultured, without decontamination step, on HEYM-VAN, Middlebrook 7H9 (VersaTrekTM system) and HEYM, the last two supplemented with MIGIT PANTA, penicillin and nisin. Currently, only data related to the laboratory-scale creaming process are available. We observed a decrement of MAP load (Log 1) after natural creaming process at both temperature conditions, suggesting natural creaming process is effective in reducing 90% of MAP contamination of milk. Data on MAP survival during the manufacturing process will be further available.

Carosielli L, Rosamilia°A, Micheli MR

Il nuovo destino e la possibilità d’impiego delle carni provenienti da macellazione d’urgenza

Ital J Food Safety. - Vol. 3 suppl 1 (2014). - p 11 (C18) [Nr. Estr. 5805]

Convegno Nazionale Associazione Italiana Veterinari Igienisti (AIVI) (24. : Bologna : 10-12 settembre 2014)

Il regolamento (UE) n.218 del 7 marzo 2014, modificando parti degli allegati ai regolamenti (CE) n.853/2004 e n.854/2004 relativi all'identificazione e al destino delle carni provenienti da animali sottoposti a macellazione non-ordinaria al di fuori del macello riconosciuto, in applicazione dal 1°giugno 2014, apre nuove opportunità alla commerci alizzazione e all'impiego di tali carni. Vincoli e restrizioni per una vendita responsabilmente condizionata erano stati posti anche dai regolamenti n. 853 e n. 854 del 2004 che prevedevano l'uso di un bollo sanitario speciale per le carni derivanti da macellazione d'urgenza e l'immissione sul mercato soltanto nello Stato membro in cui si effettuava la macellazione.

Chiapponi°C, Pavoni°E, Bertasi°B, Baioni°L, Sca ltriti°E, Chiesa E, Cianti L, Losio°MN, Pongolini°S

Isolation and genomic sequence of hepatitis A virus from mixed frozen berries in Italy

Food Environ Virol . - Vol. 6 (2014). - p 202-206. - 15 bib ref [Nr. Estr. 5937]

Hepatitis A virus (HAV) was detected in two samples of mixed frozen berries linked to Italian hepatitis A outbreak in April and September 2013. Both viruses were fully sequenced by next-generation sequencing and the genomes clustered with HAV complete genomes of sub-genotype IA with nucleotide identities of 95–97 %.

Consoli°M, Pavoni°E, Galuppini°E, Meletti°F, Ch iapponi°C, Cammi°G, Pongolini°S, Losio°MN

Assessment of risk related to the consumption of fresh fruit and vegetables distributed at educational institutes

3rd European Association of Veterinary Laboratory Diagnosticians (EAVLD) Congress : Pisa (Italy), 12-15 October, 2014 : abstract book and final programme / [s.l. : s.n., 2014]. - p 224. - 3 bib ref [Nr. Estr. 5893]

European Association of Veterinary Laboratory Diagnosticians Congress (EAVLD) (3rd : Pisa (Italy) : October 12-15, 2014)

Cosciani-Cunico°E, Baranyi J, Dalzini°E, Daminell i°P, Losio°MN, Varisco°G

Predictive modelling of microbial interactions in cheese : a trade-off between mathematical exactness and empirical pragmatism

European symposium on food safety : 7-9 May 2014 Budapest, Hungary / [s.l. : s.n., 2014]. - P1-26 [Nr. Estr. 5694]

European symposium on food safety : Budapest, Hungary : 7-9 May 2014)

Introduction: In the RASFF database (ec.europa.eu), in the last decade, 40 notifications of Listeria monocytogenes related to blue-veined cheese were recorded. This cheese is characterized by a dynamic ecosystem, with protease- and pH-mediated interactions between lactic acid bacteria (LAB) and Penicillium roqueforti that can make the environment suitable for L. monocytogenes growth. Purpose: The aim of the study is to explore two different approaches to model the behavior of L. monocytogenes in the above environment and to compare the predictions with data generated by challenge tests. Methods: The first approach that was used was a system of differential equations to describe the ecosystem. This is a relatively advanced mathematical technique, but it has a disadvantage in that it is not easy to identify the coefficients of the system. The second approach replaces some of the differential equations with empirical quadratic polynomials, coefficients of which are estimated on data. For validation experiments, during cheese making and aging, LAB,

mould, inoculated L. monocytogeneslog cell concentrations, pH and free amino acid, were measured. Biochemical rates were taken from literature and derived from measurements. The system of differential equations was solved numerically by a software written in Visual Basic, as was the parameter estimation problem, using the Least Squares method. Results: The differential equations reflect a mechanistic description of the dynamic system, but the practical applicability is hindered by the Jack of relevant data. Empirical quadratic response surfaces can serve as a means to provide a trade-off between mathematical exactness and pragmatism. However, the latter is unsuitable for even the slightest extrapolation and it is important to keep the dynamic models at hand for times when more data will become available. Significance: This study can serve as an example for both developers and users, by which to model complex dynamíc interactions and evaluate the model' s performance from a practical view point.

Cosciani-Cunico°E, Dalzini°E, D'Amico°S, Sfameni °C, Bertasi°B, Losio°MN, Giacometti F, Daminelli°P

Behaviour of Escherichia coli O157:H7 during the manufacture and ripening of an Italian traditional raw goat milk cheese

Ital J Food Safety. - Vol. 3 no 1 (2014). - no 2243 (p 20-22). - 16 bib ref (ultimo accesso 27/02/2014 http://www.pagepressjournals.org/index.php/ijfs/article/view/2243/1773) [Nr. Estr. 5651]

Formagelle di capra is a raw goat cheese produced from whole chilled goat milk; traditional technology involving unpasteurised milk and indigenous lactic starter cultures is employed for its production in Italy. The purpose of this study was to assess the behaviour of Escherichia coli O157:H7 during the manufacturing and ripening of this raw goat milk cheese. Raw milk was experimentally inoculated with E. coli O157:H7 in a laboratory scale plant and the count was monitored during production and 30 days of ripening required for this cheese. Results showed that E. coli O157:H7 count increased to more than 1.5 Log cfu g–1 during cheese production and remained constant until the end of ripening. The evidence that E. coli O157:H7 is able to survive during the manufacturing and ripening process suggests that the 30-day ripening period alone is insufficient to eliminate levels of viable E. coli O157:H7 in Formaggelle di capra cheese and that the presence of low numbers of E. coli O157:H7 in milk destined for the production of raw goat milk cheeses could represent a potential source of infection for humans and a threat for consumers.

Cosciani-Cunico°E, Dalzini°E, Ducoli°S, Sfameni° C, Bertasi°B, Losio°MN, Daminelli°P, Varisco°G

Comportamento di Listeria monocytogenes ed Escherichia coli O157:H7 durante la caseificazione e la stagionatura di formaggi a latte crudo tipici delle Alpi italiane = Behaviour of Listeria monocytogenes and Escherichia coli O157:H7 during the cheese making of traditional rawmilk cheeses from italian Alps

Ital J Food Safety. - Vol. 3 suppl 1 (2014). - p 14 (C25) [Nr. Estr. 5797]

Convegno Nazionale Associazione Italiana Veterinari Igienisti (AIVI) (24. : Bologna : 10-12 settembre 2014)

Nel database del Sistema di Allarme Rapido per alimenti e Mangimi (RASFF) creato dalla CE, sono riportate 55 allerte relative alla presenza di Listeria monocytogenes e Escherichia coli verocitotossico (VTEC) in formaggi a latte crudo prodotti negli ultimi 10 anni. Questi prodotti infatti, ottenuti da latte non sottoposto ad alcun trattamento termico di sanificazione e caratterizzati dalla cottura della cagliata a temperature inferiori di 48℃, sono noti per essere i più frequentemente contaminati. Inoltre, è documentato che i formaggi a latte crudo, con un breve periodo di stagionatura (inferiore a 60 giorni) potrebbero generare gravi focolai epidemici. Pertanto, l’obiettivo del presente lavoro è stato quello di studiare il comportamento di questi patogeni durante il processo produttivo due tipologie di formaggio Italiano. Attraverso studi di challenge test, il comportamento di

L. monocytogenes ed E. coli O157:H7 è stato studiato durante la caseificazione e la stagionatura di formaggi d'Alpe italiani prodotti da latte crudo, ottenuti senza colture starter. La prima tipologia di formaggio è caratterizzata da una breve stagionatura (60 giorni) e dall'assenza di trattamento di cottura della cagliata; mentre, la seconda tipologia di formaggio prevede una stagionatura più lunga (120 giorni) ed un trattamento termico della cagliata (45℃ per 15 min). I formaggi sono stati prodotti, con l'ausilio e le indicazioni tecniche dei produttori (www.ars-alimentaria.it) nell'impianto pilota presso l'Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia Romagna. Oltre alle forme non contaminate, di controllo, sono state prodotte alcune forme con latte artificialmente contaminato. Il latte crudo è stato separatamente inoculato con una miscela di 3 ceppi di L. monocytogenes ed E. coli O157:H7 ad una concentrazione di circa 4 Log ufc/mL per patogeno. La concentrazione dei patogeni è aumentata di più di 1 Log ufc/g durante i primi giorni di processo e, successivamente, o è rimasta pressoché costante fino al termine della stagionatura (L. monocytogenes in entrambe le tipologie di formaggi ed E. coli O157:H7 nel formaggio d'Alpe a breve stagionatura) o diminuisce di circa 6 Log ufc/g (E. coli O157:H7 nel formaggio d'Alpe a lunga stagionatura). I risultati indicano che l'ambiente e la natura dei microrganismi patogeni influenzano diversamente la concentrazione dei batteri durante la caseificazione e la stagionatura dei formaggi. Conoscere le variabili intrinseche ed estrinseche che caratterizzano questi due formaggi tradizionali italiani prodotti in alpeggio, permette di validare i modelli dinamici predittivi pubblicati in letteratura attraverso i dati presentati in questo studio.

Cremonesi P, Bignoli G, Pozzi F, Luini°MV, Castigl ioni B

Enterotoxigenic Staphylococcus aureus in food samples

LXVIII Convegno Nazionale della Societa' Italiana delle Scienze Veterinarie (SISVET) : Convegno SICV : XI Convegno AIPVet : XII Convegno SIRA16-18 Giugno 2014 Pisa / [s.l. : s.n., 2014]. - p 131. - 2 bib ref [Nr. Estr. 5988]

Convegno Nazionale della Societa' Italiana delle Scienze Veterinarie (SISVET) : 68 Convegno SICV Convegno AIPVet : 11 Convegno SIRA : 12 : Pisa : 16-18 Giugno 2014)

Staphylococcus aureus is a well known agent for its causative role in food poisoning outbreaks associated with several food including milk and dairy products. S. aureus is also the most important agent responsible for bovine mastitis and other different diseases in animals and humans. The objective of this study was to characterize S. aureus recovered from different food matrices through phenotypic and genotypic methods. Between 2012 and 2013, 38 coagulase positive staphylococci were isolated from different food samples (1 from sandwich; 1 from butter; 8 from cooked meat and sausages; 1 from egg; 9 from raw milk and 16 from cheese samples). All the strains were cultured with standard methods and tested for susceptibility to oxacillin by disk diffusion. Contemporary the DNA was extracted from S. aureus strains using a protocol described in literature (Cremonesi et al., 2006) and the isolates were further analysed by both RS-PCR (Fournier et al., 2008) and multiplex PCR assays. The first method, based on PCR amplification of the 16S- 23S rRNA intergenic spacer region, was previously used to differentiate between different subtypes associated with bovine mastitis. The multiplex PCR assays tested the presence of genes encoding for enterotoxins (sea, seb, sec, sed, see, seg, seh, sei, sej, sel) and other virulence genes such as leukocidins and leukotoxins. All the strains analysed in this study were found to be S. aureus (nuc positive). Genotyping by RS-PCR of all isolates revealed the presence of 11 (28,9%) GTB, 3 (7,8%) GTAC, and other 18 minorities genotypes with low frequencies. Eight strains isolated from butter (1), milk (5) and from meat (2) were oxacillin resistant (21%), confirmed also by the analysis with mecA gene. Moreover, 89.4 % of the isolates were shown to be enterotoxigenic (SEs), and the most common genes present were sea, sed, seh, sei, sej. One strain isolated from sausage was positive for SEB while SEL was recovered in only one strain isolated from a milk sample. The majority of the isolates (63.1%) carried two or more enterotoxin genes with the combination of sea, seg, sei (13.1%), or sea, sed, sej (31.5 %), prevalently in GTB. See gene was not detected while seh gene occurred in 10 non-GTB strains (26.3%) in combination with sea gene. Moreover, all the strains were negative for other virulence genes such as tsst, eta, etb, and positive for lukM (7.8%), sak (68.4%), fmtb (97.3%), scn (60.5%), chp (55.2%), cna (84.2%). Mastitis-associated S. aureus strains, such as GTB, carrying different SE genes, were most frequently found in contaminated cheeses and a relevant number of

MRSA were also found. These findings emphasize the need to prevent in the herd the presence of enterotoxigenic and MRSA S. aureus strains that might have implications in public health.

Crotta M, Cosciani-Cunico°E, Dalzini°E, Daminelli °P, Paterlini°F, Luini M, Losio° MN, Rizzi R, Varisco°G

Predictive microbiology tools in multiple strains risk assessment approach of Staphylococcus aureus in milk

Food Micro : Nantes, France 1st - 4th September 2014 : abstract book / [s.l. : s.n., 2014]. - p 558. - 4 bib ref [Nr. Estr. 5835]

Food Micro : Nantes, France : 1st - 4th September 2014)

Staphylococcus aureus is a pathogenic bacterium that may induces human illnesses. The staphylococcal enterotoxin production, as the results of previous growth of toxigenic strains, is the most crucial problem, which may lead to the staphylococcal food poisoning outbreaks in humans. Because of the substantia I role of Staphylococcus aureus in hygiene and safety of raw milk consumption and artisanal cheese production (EC 2073/2005), a quantitative characterisation assessment of LAG phase and maximum specific growth rate (pimax) of fifty Staphylococcus aureus strains in milk stored at 11.5°C was carried out. Staphylococcus aureus wild strains were chosen among strains isolated from raw milk or cheese produced in north area of Italy, growth data were obtained from experimental contamination and on ComBase database (www.combase.cc). In order to better understand differences between reference and wild strain, Staphylococcus aureus reference strains were also analysed. LAG time and maximum specific growth rate were estimated with DMfit software based on Baranyi model (Baranyi and Roberts, 1994). Preliminary results shown significant difference in LAG phase parameter among Staphylococcus aureus strains analysed, estimated values ranges from a minimum value of 12,65h to a maximum value of 109,9h (all R2were >0,97). No significant differences in maximum growth rate were founded, strains shown pimaxvalues included in a range of 0.041-0.047 log(CFU/ml)-h. For quantitative risk assessment purpose, distributions of estimated parameters were fitted with @ Risk an R software (www.R-project.org). Fitted distributions of parameters, will be used as fundamental inputs in stochastic risk assessment multiple strains model. The model may help authority and producers to have a better idea about the risk regarding Staphylococcus aureus in milk and in cheese.

Dalzini°E, Bernini V, Cosciani-Cunico°E, Finazzi° G, Bertasi°B, Losio°MN, Daminelli°P, Varisco°G

Listeria monocytogenes in raw milk : study of prevalence, behaviour and modelling during the cheese making

Food Micro : Nantes, France 1st - 4th September 2014 : abstract book / [s.l. : s.n., 2014]. - p 614 [Nr. Estr. 5834]

Food Micro : Nantes, France : 1st - 4th September 2014)

The prevalence of Listeria monocytogenses in milk is influenced by numerous factors such as farm size, geographical location, and season. In Italy there are severa! manufacturers that produce cheese made from raw milk. In this context i) the study of the pathogens prevalence in raw milk and ii) the mathematical models that describing the growth of microorganisms as a function of temperature, pH and acid concentration, can be helpful tools to improve the food safety. A total of 8 725 raw milk samples collected from 2010 to 2013 were analyzed byISO 11290-1 (ISO 1996) and by a real-time PCR (AFNOR, 2004) to detect L. monocytogenes DNA. To predict the pathogen behavior during the cheese making a mathematical model developed by Le Marc et al. (2002) was used. To validate the prediction, two batches of contaminated milk (30 L each) were used for the cheese making. Milk, curd and cheese samples were analyzed throughout the cheese making to evaluate

the pathogen and lactic acid bacteria (LAB) counts and the pH and aw changes. The prevalence of L. monocytogenes in raw milk was 1.6%. During the manufacture of cheese the LAB increased from 6.7 to 9 log cfu/g in the first four days. An increase in the concentration of L. monocytogenes level (from 3.5 to 5.7 log cfu/g) was observed during the first days of ripening. The growth of pathogen then stops until the end of the ripening period. The results shown that the LAB are able to induce an early stationary state in L. monocytogenes: the growth of pathogens is inhibited when the LAB have reached a criticai density (Jameson effect). The mathematical model of Le Marc et al. (2002) predicts enough accurately the pathogen behavior (Bias: 1.04; Af: 1.1).

Dalzini°E, Cosciani-Cunico°E, D'Amico°S, Sfameni °C, Bertasi°B, Losio°MN, Serraino A, Daminelli°P

Growth potential of Listeria monocytogenes in sliced turkey bresaola packed in modified atmosphere

Ital J Food Safety. - Vol. 3 no 1 (2014). - p 44-46. - 23 bib ref [Nr. Estr. 5885]

According to EC Regulation No 2073/2005, for food business operators that produce readyto-eat (RTE) product, it is crucial to be able to demonstrate if the product supports the growth of Listeria monocytogenes. The objective of the study was therefore to evaluate the behaviour of L monocytogenes in sliced RTE turkey bresaola (made by cured turkey breast 4.5% NaCI, 1% sodium lactate, sodium nitrite 150 ppm and flavouring) during the shelf life of the product, simulating a contamination during the slicing operation. Considering a shelf life of 90 days, as defined by manufacturer, the packages of sliced bresaola were stored at 5℃ for 7 days and at 8℃ for the remaining storage time (83 days). L. monocytogenes count decreased during storage test from 1.43/1.98 log cfu/g in the three batches tested to 1.03 log cfu/g in one batch and to undetectable levels in the other two batches. The results show that the investigated product is unable to support the growth of L. monocytogenes.

Dalzini°E, Cosciani-Cunico°E, Monastero°P, Sfame ni°C, Pavoni°E, Daminelli°P, Losio°MN, Serraino A, Varisco°G

Reduction of Escherichia coli O157:H7 during manufacture and ripening of Italian semi-dry salami

Ital J Food Safety. - Vol. 3 no 2 (2014). - p 137-139. - 18 bib ref [Nr. Estr. 5753]

In order to simulate a contamination at the processing plant, one batch of freshlyprocessed salami batter (20 kg) was inoculated (1% v:w) with 5 log colony forming unit (CFU)/g of a multi-strain cocktail of two strains of Escherichia coli O157:H7 (registered and wild strain). Another batch was inoculated (1% v:w) with sterile physiological saline solution and used to check the lactic acid bacteria (Lab) behaviour and the changes of physicochemical parameters (pH and aw). Both batches were then processed to obtain a semi-dry salami (Hungarian-style): microbiological and physico-chemical properties were monitored during 94 days of ripening. During the manufacturing process, the levels of pathogen decreased of about 2.18 log CFU/g with respect to the initial inoculated levels. The behaviour of the indigenous bacteria such as Lab and the physico-chemical properties can help to determine the fate of pathogens throughout processing.

Dalzini°E, Cosciani-Cunico°E, Pavoni°E, Bertasi° B, Daminelli°P, Finazzi°G, Losio°MN, Varisco°G

Study of growth potential of Listeria monocytogenes in low fat salami : an innovative Italian

meat product

Ital J Food Safety. - Vol. 3 no 1 (2014). - p 40-43. - 32 bib ref [Nr. Estr. 5884]

In the last years, consequently to EC Regulation no. 1924/2006 on nutrition and health claims made on foods, some Italian food businnes operators (FBOs) leaders in the meat sector, invested in research to develop innovative products such as low fat salami, containing up to 30% less fat than the traditional one. For FBOs it is essential to demonstrate for each production process whether the substrate allows the growth of L. monocytogenes and whether L. monocytogenes could reach or exceed the limit of 100 cfu g-1 at the end of the shelf life, as stated by EC Regulation no. 2073/2005. In the present study, the growth potential of L. monocytogenes during the shelf life of low fat salami packed in modified atmosphere was evaluated. The results show that the product is unable to support the growth of pathogen, even if the storage temperature is between 8 and 12℃.

Dalzini°E, Cosciani-Cunico°E, Sfameni°C, Monaste ro°P, Daminelli°P, Losio°MN, Varisco°G

Cambiamenti microbiologici e chimico-fisici durante il processo produttivo di un formaggio italiano prodotto con latte crudo di capra = Microbiological and physico-chemical changes during manufacture of an italian goat cheese made from raw milk

Ital J Food Safety. - Vol. 3 suppl 1 (2014). - p 14 (C24) [Nr. Estr. 5796]

Convegno Nazionale Associazione Italiana Veterinari Igienisti (AIVI) (24. : Bologna : 10-12 settembre 2014)

Lo scopo di questo lavoro è stato quello di studiare le dinamiche microbiche dei principali gruppi batterici durante il processo produttivo di Formaggelle di capra Italiane prodotte con latte crudo. Per valutare la variabilità dei parametri microbiologici e chimicofisici, tre distinte caseificazioni di formaggella di capra sono state eseguite da Settembre a Ottobre 2012. I formaggi sono stati prodotti con latte intero crudo di capra e le caseificazioni sono state condotte nella stessa azienda agricola. Tre campioni di latte, cagliata e formaggio a 3, 7, 11, 14, 21 e 30 giorni di stagionatura, sono stati prelevati durante ciascuna replica di caseificazione e analizzati per la numerazione dei principali gruppi microbici (mediante metodi ISO) e per la rilevazione del pH e della temperatura di processo. I valori medi di conta della carica batterica totale e di Enterobacteriaceae nel latte crudo sono risultati rispettivamente di 5,27±0,57 e 3,8±1,02 Log ufc/mL. I batteri lattici rappresentano il gruppo microbico predominante durante la caseificazione e la stagionatura del formaggio, con differente sviluppo in base al terreno colturale utilizzato per la numerazione (M17 e MRS agar). I diversi gruppi microbici indagati hanno mostrato livelli variabili fra le tre repliche di caseificazione. Y stata osservata invece una correlazione tra la presenza di livelli elevati di Enterobacteriaceae nel latte raccolto durante la replica n. 2 e la presenza di altri contaminanti microbici come Escherichia coli >-glucuronidasi-positivi e stafilococchi coagulasi-positivi. Nella replica n. 2, la concentrazione di E. coli nel latte è risultata pari a 5,07±0,03 Log ufc/mL, con un aumento di circa 1 log durante il processo fino all'ultima settimana, quando il livello è sceso a 5,69±0,2 Log ufc/mL. Nella seconda replica studiata, il latte è risultato essere contaminato anche da Stafilococchi coagulasipositivi (3,18±0,06 Log ufc/mL), ma il comportamento di questo gruppo è apparso molto dinamico e variabile durante il processo produttivo. In questo lavoro è stata eseguita una prima fase di controllo di processo e di studio dei principali gruppi microbici, e le fasi di processo della formaggella di capra sono state registrate sul sito web www.ars-alimentaria.it, il sito italiano, supportato dal Ministero della Salute, che promuove l'identità, la qualità e la sicurezza dei prodotti e dei processi produttivi in Italia.

Dalzini°E, Cosciani-Cunico°E, Sfameni°C, Monaste ro°P, Daminelli°P, Losio°MN, Varisco°G

Microbiological and physico-chemical changes during manufacture of an Italian goat cheese

made from raw milk

Ital J Food Safety. - Vol. 3 no 4586 (2014). - p 222-225. - 15 bib ref [Nr. Estr. 5913]

The aim of this work was to study the microbiological and physico-chemical changes throughout three cheesemaking replicates of Italian Formaggelle di capra cheese made from raw goat milk. Therefore, during the process, three samples of milk, curd and cheese at 3, 7, 11, 14, 21 and 30 days of ripening old cheese were taken from three cheesemaking replicates. The average of total mesophilic bacteria and Enterobacteriaceae count in raw milk was 5.27±0.57 and 3.8±1.02 Log cfu/mL, respectively. Lactic acid bacteria was the predominant bacterial group during the process, and they developed in different ways in each of the media used (M17 and MRS agar). Variability of microbial concentrations was observed between three cheesemaking replicates. A correlation between the presence of higher levels of Enterobacteriaceae in milk and the presence of other contaminants bacteria such as Escherichia coli ß-glucuronidase-positive and coagulase-positive staphylococci was observed. In cheesemaking replicate n. 2, E. coli level was 5.07±0.03 Log cfu/mL and increased by about 1 log until the last week of ripening, when the level decreased to 5.69±0.2 Log cfu/mL. The milk used for the cheesemaking replicate n. 2 was found to be contaminated also by coagulase-positive staphylococci (3.18±0.06 Log cfu/mL), but the behaviour of this group appeared to be very variable. In this study a first step of process control and microbial groups study was performed and the cheesemaking process was registered in the website www.ars-alimentaria.it, the Italian site supported by the Italian Board of Health.

Daminelli°P, Cosciani-Cunico°E, Baranyi J, Losio° MN, Bontempi°G, Varisco°G

Ars Alimentaria : an innovative tool for ensuring food safety

European symposiumon food safety : 7-9 May 2014 Budapest, Hungary / [s.l. : s.n., 2014]. - T1-04 [Nr. Estr. 5693]

European symposium on food safety : Budapest, Hungary : 7-9 May 2014)

Introduction: Ars Alimentaria of the Italian Ministry of Health, is an initiative aimed at ensuring the microbiological safety of foods "Made in Italy." Its central tool is a food safety portal, based on scientific principles and internationally recognized standards. The initiative is a prime example of utilizing the exponentially growing "Big Data" and for the practical application of predictive microbiology techniques. Purpose: The objectives of the project are to: Create a database of food manufacturing technologies and products, with software tools helping utilize the data and making them accessible for Ars Alimentaria partners via the food safey portal; Continuously enhance these tools and promote them via training and joint actions with stakeholders; Promote international cooperation regarding food safety and quality, including collaboration on areas such as nutrition value and traceability.

Methods: Within Ars Alimentaria, currently 7,640 food companies are surveyed and 54,916 products with the "Made in Italy" brand are catalogued. A database ontology has been developed that will make it possible to generate prompt statistics relevant to food safety and quality. Statistica) analysis of the data will generate input for HACCP recommendations. Furthermore, predictive microbiology techniques will be used to provide intelligent support tools regarding food safety decisions.

Results: Expected results of the project are: The portal will become a primary source to develop CCP processes; FBO-s will increasingly base food safety decisions on scientifically solid information; Food safety information will be made available for Hazard analysis; Provide methods to determine shelf)ife of food based on scientific and objective principles.

Significance: This is the first initiative of its kind in Italy, where advances in computing and predictive food microbiology are used as a direct translation of knowledge to help FBO-s in their efforts to produce, store and distribute safe, good quality and traceable food products.

Daminelli°P, Dalzini°E, Cosciani-Cunico°E, Finaz zi°G, D'Amico°S, Losio°MN

Prediction of the maximal growth rate of Listeria monocytogenes in sliced mortadella by the square root type model

Ital J Food Sci. - Vol. 26 (2014). - p 261-267. - 36 bib ref [Nr. Estr. 5831]

The growth parameter (maximum specific growth rate, t-tmaJ of two different strains of Listeria monocytogenes on sliced Mortadella were calculated. Three batches of sliced Mortadella were vac-uum packed, stored at 8℃ and samples collected at different time intervals were enumerated for L. monocytogenes. The pathogen counts were fitted using the DMFit version 2.1 ExceJ® add-in, based on Baranyi mode!, to determine the specific growth rates. At 8℃ the sliced Mortadella sup- ported rapid and prolific L. monocytogenes growth: the t-tmax varied between 0.035/h and 0.044/h, and the pathogen counts increased up to 108 CFU/g after 21-27 days. A square root type mode!, Ratkowsky mode!, was used to describe how 1-l max changes as a function of storage temperature. Growth kinetics data could be useful for establishing a safe shelf life, once the product could be post process contaminated and stored under different handling scenarios.

De_Cicco°C, Arrigoni°N, Kralik P, Babak V, Boniot ti°MB, Savi°R, Cerutti°G, Cammi°G, Garbarino°C, Ricchi°M

Evaluation of viable Mycobacterium avium subsp. paratuberculosis in milk using peptide-mediated separation and propidium monoazide qPCR

12th International Colloquium on Paratuberculosis : Parma, Italy, 22/26 June 2014 : program and abstracts / [s.l. : s.n., 2014]. - p 60 (Oral O-02.7) [Nr. Estr. 5774]

International Colloquium on Paratuberculosis (ICP) (12th : Parma, Italy : 22/26 June 2014)

The causative agent of Paratuberculosis in ruminants, Mycobacterium avium subsp. paratuberculosis (MAP), although still a matter of debate, has been linked with Crohn's and other human diseases. The availability of rapid methods for assessing the viability of MAP cells in food, in particular milk, could be of great use for risk management in food safety. MAP viability is generally assessed using culture techniques, which require pro-longed incubation periods for the growth of MAP. Aim of our work was the developing of new approaches to differentiate between viable and non-viable MAP cells in milk samples. For this purpose, present study explores the combination of two already described techniques: peptide magnetic bead separation for the capture of MAP cells, followed by Propidium Monoazide-qPCR. The method was successful in the assessment of MAP cells viability in milk samples. Moreover, analysing the results obtained by spiking milk samples with mixture containing different percentages of viable/dead cells, an Ordinal Multinomial Logistic Regression model can determine the probability related to viability status of MAP cells in milk. Finally, this model was succesfully applied to artificially contaminated pasteurized milk to ascertain the efficacy of heat treatment in MAP cells killing. Hovewer, the limit of detection of the model was around 500 CFU/mlof milk, a concentration of MAP cells higher than that reported to be present in both individual and bulk tank milk. In conclusion, the method herein reported can be used for direct detection of MAP cells viability status in milk; however, further studies are needed to improve the sensitivity of the assay.

De_Medici D, Alfonsi V, Bruni R, Busani L, Ciccaglione AR, Di_Pasquale S, Equestre M, Escher M, Ricotta L, Rizzo C, Scavia G, Taffon S, Tosti ME, Pompa MG, Martini V, lannazzo S, Losio°MN, Varisco°G, P avoni°E, Massaro M, Cappelletti B, Noè P, Menghi A, Guizzardi S, Lena R, Plutino G, Monteleone D, Borrello S

Hepatitis A outbreak in Italy associated with frozen berries

Eur J Public Health. - Vol. 24 suppl 2 (2014). - p 260 [Nr. Estr. 5873]

European Public Health Conference (7th : Glasgow : 19-22 November 2014)

In early May 2013, Germany reported through the Epidemie Intelligente Information Systems (EPIS) and the Early Warning and Response Systems (EWRS) seven Hepatitis A (HAV) cases associated with a travel history in Northern Italy. Following the alert, the Italian Integrated Epidemiological System of Acute Viral Hepatitis (SEIEVA) reported also an increase of HAV cases in the same area in 2013. Cases identified were infected with HAV genotype IA with an identical "outbreak" sequence (KF182323). To monitor HAV cases all over the country and evaluate the possible sources of infection an interdisciplinary Task Force coordinated by the Ministry of Health was established. A retrospettive matched case control study (119 cases, 419 controls) was conducted in order to identify a common exposure. The analytical investigation indicated the consump¬tion of berries (OR 4.2, 95% CI 2.5-7.0) as a possible source of infection. The strong epidemiological evidence was also supported by the microbiological evidence of HAV contam¬ination of some samples of frozen berries. These tested positive for HAV by a method based on nested PCR. Further sequencing of HAV obtained by one sample showed 100% identity with the "outbreak" sequence. A tracing-back exercise to identify possible sources of HAV contamination of frozen berries was then started. Overall from lst January 2013 to 28th February 2014 a total of 1.463 HAV cases were reported to the National Surveillance Systems. To date, a total of 357 eligible sequences (according to current ECDC criteria) were compared. Among them, 238/357 (66.7%) showed the "outbreak" sequence. In order to prevent the spread of the outbreak, voluntary recall of the confirmed mixed frozen berries lots was performed. Moreover, the MoH recommended through the website: to cook frozen berries for 2 minutes before eating, to not use raw berries as a garnish, and to wash thoroughly the containers and utensils used to handle the thawed berries. Epidemiological, microbiological and environmental investigations indicate frozen berries as the vehicle of infection for this outbreak. Moreover, recently, other 6 EU countries have reported HAV cases with the same "outbreak" sequence with no travel history to Italy. Key messages- The assessment of an outbreak through an interdisciplinary approach demonstrated the benefits in order to improve the management of crisis, and correct communication of the risk to stakeholders. Food, especially frozen food, is an important vehicle for the transmission of viral illness at multinational level.

Delibato E, Rodriguez-Lazaro D, Gianfranceschi M, De_Cesare A, Comin D, Gattuso A, Hernandez M, Sonnessa M, Pasquali F, Sreter-Lancz Z, Saiz-Abajo MJ, Pérez-De-Juan J, Butròn J, Prukner-Radovcic E, Horvatek Tomic D, Johannessen GS, Jakociune D, Olsen JE, Chemaly M, Le_Gall F, González-García P, Lettini AA, Lukac M, Quesne S, Zampieron C, De_Santis P, Lovari S, Bertasi°B, Pavoni°E, Proroga YTR, Capuano F, Manfreda G, De_Medici D

European validation of a real-time PCR-based method for detection of Salmonella spp in pork meat

Int J Food Microbiol. - Vol. 184 (2014). - p 134-138. - 25 bib ref (ultimo accesso 05/11/2014 http://www.sciencedirect.com/science/article/pii/S0168160514000336) [Nr. Estr. 5832]

The classical microbiological method for detection of Salmonella spp. requires more than five days for final confirmation, and consequently there is a need for an alternative methodology for detection of this pathogen particularly in those food categories with a short shelf-life. This study presents an international (at European level) ISO 16140-based validation study of a non-proprietary Real-Time PCR-based method that can generate final results the day following sample analysis. It is based on an ISO compatible enrichment coupled to an easy and inexpensive DNA extraction and a consolidated Real-Time PCR assay. Thirteen laboratories from seven European Countries participated to this trial, and pork meat was selected as food model. The limit of detection observed was down to 10 CFU per 25 g of sample, showing excellent concordance and accordance values between samples and laboratories (100%). In addition, excellent values were obtained for relative accuracy, specificity and sensitivity (100%) when the results obtained for the Real-Time PCR-based

methods were compared to those of the ISO 6579:2002 standard method. The results of this international trial demonstrate that the evaluated Real-Time PCR-based method represents an excellent alternative to the ISO standard. In fact, it shows an equal and solid performance as well as it reduces dramatically the extent of the analytical process, and can be easily implemented routinely by the Competent Authorities and Food Industry laboratories.

Finardi C, Pongolini°S

"Boil before consumption" : lessons to learn from the risk (mis)management case of raw milk in Italy

Prog Nutr. - Vol. 16 no 3 (2014). - p 159-167. - 36 bib ref [Nr. Estr. 5953]

In 2008, a media crisis flared up and the issue triggered a prolonged "food scare": raw milk was blamed as the cause of several cases of Haemolytic Uraemic Syndrome (HUS) due to shiga-toxin producing Escherichia coli, which are highly pathogenic and sometimes lethal in children. The immediate response of the Minister of Health was an urgent decree, that ordered to report "raw milk: to be boiled before consumption" in front of the distributors in red-characters and with. a defined size. Therefore, instead of reassuring consumers, this warning appeared as the admission that milk was unsafe, and a confirmation th.at there was a real food safety problem out there. Scope of the present article to highlight how the risk-management cycle developed, departing from the media framing of the issue. The lack of time (5 days passed from problem recognition to risk management measures) resulted in an over conservative yet effective policy option, but at the expense of farmers, blamed of selling dangerous milk. Results suggests that there was an inverted policy-making cycle, in the try to reassure the citizens while providing a protective risk management (and at the same time allowing raw milk sales to continue, even if under rigid conditions). We consider how -the framework given by the media conditioned strongly the policy measures undertaken, limiting a 5,vider set of policy options and suggestions.

Finazzi°G, Daminelli°P, Bertasi°B, Losio°MN

La conservazione dei funghi : problemi igienico-sanitari (botulino e contaminazione batteriologica)

Pagine Micol. - Vol. 37 (2014). - p 153-155. - 4 bib ref [Nr. Estr. 5979]

Convegno Internazionale di Micotossicologia "Funghi e salute: problematiche cliniche, igienico-sanitarie, ecosistemiche, normative e ispettive, legate alla globalizzazione commerciale" (5. : Milano : 3-4 Dicembre 2012)

Il botulismo è una intossicazione alimentare che può portare al decesso degli individui coinvolti. Si descrivono le principali caratteristiche dell'agente eziologico, della epidemiología, della sintomatologia e della patogenesi della intossicazione fornendo anche la descrizione delle metodologie analitiche utilizzate per la diagnosi di laboratorio su campioni di alimenti o campioni biologici dei pazienti colpiti.

Botulism is a severe foodborne disease that can lead to the death of those affected. In this paper are described the main characteristics of the causative agent, the epidemiology, the pathogenesis and symptoms of intoxication. In the paper are also described the analytical methods used for the laboratories diagnosis applied on food samples and on biological samples from suffering patients.

Gamba°V, Bertoni°L, Borra°A, Moneta°C, Berardi° A, Facchetti°S, Dusi°G

Stability of antibiotic residues in incurred meat samples during frozen storage

3rd European Association of Veterinary Laboratory Diagnosticians (EAVLD) Congress : Pisa (Italy),

12-15 October, 2014 : abstract book and final programme / [s.l. : s.n., 2014]. - p 151. - 4 bib ref [Nr. Estr. 6017]

European Association of Veterinary Laboratory Diagnosticians Congress (EAVLD) (3rd : Pisa (Italy) : October 12-15, 2014)

Gamba°V, Pellicciotti°S, Borra°A, Bertoni°L, As sini°W, Dusi°G

A rapid multiresidue method for the determination of six ionophores and decoquinate in raw milk by liquid chromatography-tandem mass spectrometry (LC-MS/MS) and results of monitoring in the North of Italy

7th Intenational Symposium on Hormone and Veterinary Drug Residue Analysis : Ghent, Belgium, 2-5 June, 2014 : abstract book / organized by Faculty of Veterinary Medicine, Faculty of Pharmaceutical Sciences, University of Ghent, Belgium and Institute of Agricultural and Fisheries Research (ILVO), Belgium. - [Ghent : Faculty of Pharmaceutical Sciences, 2014]. - p 111 [Nr. Estr. 5711]

International Symposium on Hormone and Veterinary Drug Residue Analysis (7th : Ghent, Belgium : 2-5 June, 2014)

Ionophores and Decoquinate are feed additives used in the beef industry for improved feed efficiency and control of coccidiosis. In veterinary medicine, Monensin is used in lactating dairy cattie for control of ketosis. In the EU legislation the use of lonophores and Decoquinate is allowed. Regulation (EC) N.37/2010 established for Monensin a MRL of 2 u.g/kg in milk and provides that Decoquinate is not for use in animals producing milk for human consumption. Regulation (EC) N.86/2012 provides that Lasalocid is not for use in animals producing milk for human consumption. Regulation (EC) N.124/2009 and 610/2012 set maximum Ievels for others lonophores in milk resulting from the unavoidable carry-over of these substances in non-target feed: 1 .J.g/kg for Narasin and 21..t.g/kg for Salinomycin, Semduramicin, Maduramicin. In recent years several works on LC-MS/MS analysis of coccidiostats have reported but most of them focused on tissues and eggs. Only one method on LC-MS/MS analysis of coccidiostats in milk has been published. The aim of this work is the development of a LC-MS/MS screening method for the determination of six molecules of lonophores class and Decoquinate in raw milk. The method was validated by according to the European Decision 2002/657/EC with CCP of 1.tg/kg for all analytes. Results of a monitoring plan in the north of Italy was also presented.

Garbarino°C, Cammi°G, Ricchi°M, Savi°R, Pongoli ni°S, Arrigoni°N

Paratubercolosi : un problema di sanità pubblica = Paratuberculosis : a public health problem?

Large Anim Rev. - Vol. 20 no 4 Supp 1 (2014). - p 58-61. - 10 bib ref [Nr. Estr. 5812]

Congresso Nazionale Societa Italiana di Patologia e di Allevamento degli Ovini e dei Caprini (SIPAOC) (21. : Foggia : 9-12 Settembre 2014)

Gasparini°M

Confirmatory method for the determination of pesticides in milk sample by gas chromatography-Tandem Mass Spectrometry

10th European Pesticide Residues Workshop : Dublin, Irland, 30th June - 3rd July 2014 / [s.l. : s.n., 2014]. - p 105 [Nr. Estr. 5818]

European Pesticide Residues Workshop (10th : Dublin, Irland : 30th June - 3rd July, 2014)

European regulations, 396/2005 and 788/2012, state that analytical methods for the determination of pesticide residues in animal products must be multi-class and must be able to reveal concentrations lower than the maximum allowed residue levels (MRLs). Moreover the Italian Health Ministry publics every year the National Piane for Residues Research (PNR), that refers to the resolutions of

European Commission. Reg. 788/2012 and PNR make a list: the classes of pesticides to detect include organochlorine, organophosphorous and pyrethroids. In this work we described the method developed for the pesticides analysis in milk, by GC and tandem mass spectrometry, used for laboratory routine analysis. The confirmatory method is compiiance with European Regulations, is muiticiass and multi-residue and achieved sensitivity fit for purpose, with three days anaiysis time. The procedure allows simultaneous anaiysis of 52 analytes beionging to the three above mentioned classes (organochlorine, organophosphorous and pyrethroids) in a single run. Milk is a compiex biological matrix due to its high content of water, fat and protein and before the anaiysis is necessary to process the sampie. The procedure will be based on the use of the QuEChERS extraction using ethylacetate as solvent, a single Gel Permeation Chromatograph (GPC) purification step and GC analysis with tandem mass spectrometry (GC MS/MS) detection. The method was validated as a quantitative confirmatory method according to the Document N°SANCO/12571/2013: matrix matched calibration, instrumental linearity, Limit of Quantification (LOQ),specificity, precision, trueness and uncertainty were evaluated for all the analytes. Precision and trueness was checked at LOQ, 2xLOQ and 6xLOQ, including safety levels; mean recoveries (trueness) ranged between 70 and 115% 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'SANC0/12571/2013.

Gianfranceschi MV, Rodriguez-Lazaro D, Hernandez M, González_García P, Comin D, Gattuso A, Delibato E, Sonnessa M, Pasquali F, Prencipe V, Sreter-Lancz Z, Saiz-Abajo MJ, Pérez_De_Juan J, Butrón J, Kozacinski L, Horvatek_Tomic D, Zdolec N, Johannessen GS, Jakociune D, Olsen JE, De_Santis P, Lovari S, Bertasi°B, Pavoni°E, Paiusco A, De_C esare A, Manfreda G, De_Medici D

European validation of a real-time PCR-based method for detection of Listeria monocytogenes in soft cheese

Int J Food Microbiol. - Vol. 184 (2014). - p 128-133. - 21 bib ref [Nr. Estr. 5867]

The classical microbiological method for detection of Listeria monocytogenes requires around 7 days for final confirmation, and due to perishable nature of RTE food products, there is a clear need for an alternative methodology for detection of this pathogen. This study presents an international (at European level) ISO 16140-based validation trial of a non-proprietary real-time PCR-based methodology that can generate final results in the following day of the analysis. This methodology is based on an ISO compatible enrichment coupled to a bacterial DNA extraction and a consolidated real-time PCR assay. Twelve laboratories from six European countries participated in this trial, and soft cheese was selected as food model since it can represent a difficult matrix for the bacterial DNA extraction and real-time PCR amplification. The limit of detection observed was down to 10 CFU per 25 of sample, showing excellent concordance and accordance values between samples and laboratories (> 75%). In addition, excellent values were obtained for relative accuracy, specificity and sensitivity (82.75%, 96.70% and 97.62%, respectively) when the results obtained for the real-time PCR-based methods were compared to those of the ISO 11290-1 standard method. An interesting observation was that the L. monocytogenes detection by the real-time PCR method was less affected in the presence of Listeria innocua in the contaminated samples, proving therefore to be more reliable than the reference method. The results of this international trial demonstrate that the evaluated real-time PCR-based method represents an excellent alterative to the ISO standard since it shows a higher performance as well as reduce the extent of the analytical process, and can be easily implemented routinely by the competent authorities and food industry laboratories.

Klanicova B, Ricchi°M, Slana I, Kralik P

Detection of Mycobacterium avium subsp. paratuberculosis viability in fermented milk

products using propidium monoazide

12th International Colloquium on Paratuberculosis : Parma, Italy, 22/26 June 2014 : program and abstracts / [s.l. : s.n., 2014]. - p 70 (Poster P-02.15) [Nr. Estr. 5771]

International Colloquium on Paratuberculosis (ICP) (12th : Parma, Italy : 22/26 June 2014)

Mycobacterium avium subsp. paratuberculosis (MAP) is able to survive extreme conditions like low pH (e.g. in fermented products) and high or low temperature (during pasteurization or storage). Propidium monoazide (PMA) is a dye which is able to penetrate into dead cells, link with the DNA and thus allows to distinguish be-tween live and dead cells. We attempted to discriminate viable MAP from artificially spiked fermented milk products using peptide-mediated magnetic separation (PMS) following PMA treatment, a method successfully used for milk samples. However, different product weights, pH, liquid and solid MAP cultures revealed failure in the ability to clearly distinguish between live and dead cells when using PMS and PMA. A possible explanation could be the inter-ference caused by the high concentration of lactic acid bacteria present in fermented milk products with the magnetic beads. This assumption was confirmed when the isolation of MAP using silica-based DNA purifica-tion kit was carried out. The viability of MAP during the fermentation of milk products was then successfully determined using PMA.

Lorenzi°V, Angelucci°A, Fusi°F, Donati°M, Dusi° G, Hathaway°T, Bertocchi°L

Prednisolone : è una molecola endogena?

Inf Zootec. - Vol. 60 no 2 (2014). - p 22-27. - 11 bib ref [Nr. Estr. 5640]

Losio°MN, Bilei S, Bertasi°B, Delibato E, De_Sant is P, De_Medici D

Horse meat : uno scandalo europeo che apre a nuovi rischi per il mercato italiano

Pastaria. - Vol. no 4 (2014). - p 62-65 [Nr. Estr. 5791]

Losio°MN, Pavoni°E, Bilei S, Bertasi°B, Bove D, Capuano F, Cenci T, Comin D, Cardamone C, Decastelli L, Delibato E, De_Santis P, Di_Pasquale S, Gattuso A, Goffredo E, Fadda A, Pisanu M, Scuota S, De Medici D

Microbiological survey of raw and Ready-To-Eat leafy green vegetables collected on the Italian Market

Food Micro : Nantes, France 1st - 4th September 2014 : abstract book / [s.l. : s.n., 2014]. - p 572 [Nr. Estr. 5890]

Food Micro : Nantes, France : 1st - 4th September 2014)

New trends in nutrition and modern lifestyle are producing an increasing demand for «ready-to-eat» products. Minimally processed salads are among the most requested products because they provide high nutritional value while maintaining their freshness appeal. Since there is no strategy for achieving complete elimination of hazardous microorganisms on fresh produce without affecting product quality, the number of documented outbreaks of human infections related to the consumption of minimally processed vegetables has increased considerably in recent decades. The purpose of this study was to evaluate the presence of the major food-borne pathogens (Salmonella spp., L. monocytogenes, E. coli O:157-H:7, thermotolerant Campylobacter, Yersinia enterocolitica, norovirus) in raw and RTE vegetables sampled on the Italian market, in order to assess health risk associated with their consumption. The monitoring plan covered 18 out of 20 Italian regions including the 97.7% of population and carried out sharing the same detection methods by different laboratories. A total of 2,532 matrices (1,372 raw samples and 1,160 RTE samples) of leafy green vegetables were analyzed. The sampling was performed between 2011 and 2012 and prepared modifying, for the aim of this survey, the European Regulation 333/2007. All the labs performed the analysis using the same Real-Time PCR platform and the same methods. The results showed very

few positive samples, mainly by Real-Time PCR method, and the majority of the contaminated samples derived from raw matrices; also a small percentage of positives were found in RTE vegetables. The data obtained in this study demonstrated molecular method, particularly Real Time PCR, to be more sensitive than traditional cultural method. However, this study does not clarify if this increase of sensitivity is correlated with the inability of molecular methods to distinguish between infective and not infective bacteria, or the inefficiency of classical cultural method to detect infective foodborne bacteria from environmental samples.

Luini°M, Borella L

Carne e sicurezza alimentare = Meat and food security

Filiera zootecnica, valore alimentare : seminari carne : Sant'Angelo Lodigiano 18 e 20 ottobre 2013 : atti / edizione a cura di Tommaso Maggiore e Luigi Mariani. - Sant'Angelo Lodigiano : Museo lombardo di storia dell'agricoltura, 2014. - p 126-135. - 5 bib ref [Nr. Estr. 5661]

Seminari carne : Sant'Angelo Lodigiano : 18 e 20 ottobre 2013)

Vengono presi in esame il concetto di sicurezza alimentare, le definizioni ed i principi ispiratori delle attività di controllo sugli alimenti in atto in Europa dopo la pubblicazione del cosiddetto Libro Bianco per la sicurezza alimentare e dei successivi regolamenti del "Pacchetto Igiene". Segue una breve disamina dei risultati dei controlli previsti dal Piano Nazionale Integrato, (PNI) e delle segnalazioni del Sistema di Allerta Rapido (RASFF) con particolare riferimento alla Lombardia e all'anno 2012. Vengono poi riferiti alcuni dati del rapporto EFSA 2013 sulle tossinfezioni alimentari in rapporto all'eziologia dei casi accertati. In conclusione viene portato l'esempio delle infezioni da E. coli vero citotossici (VTEC) per evidenziare le azioni che possono essere messe in atto per la prevenzione delle tossinfezioni da microrganismi a ciclo oro-fecale.

The concept of food security, the definitions and the principles of food control activities in place in Europe after the publication of the so-called White Paper on Food Safety and subsequent regulations of the "Hygiene Package" are discussed. Following is a brief discussion of the results of the controls provided by the National Integrated Plan (PNI) and the reports of the Rapid Alert System (RASFF), with particular reference to the Region Lombardy and the year 2012. Then, some data from the EFSA report 2013 on food¬borne diseases and the causative agents of recognized outbreaks are reported. In conclusion, the example of verocytotoxic E. coli (VTEC) infections is taken to highlight the actions to be taken to prevent foodborn diseases caused by microrganisms with fecal-oral cycle.

Menotta°S, Bartolini°M, Bertoni°L, Dusi°G, Gamb a°V

Development and validation of a screening ELISA test for the determination of tetracyclines in tissues, egg, milk, honey and water

7th Intenational Symposium on Hormone and Veterinary Drug Residue Analysis : Ghent, Belgium, 2-5 June, 2014 : abstract book / organized by Faculty of Veterinary Medicine, Faculty of Pharmaceutical Sciences, University of Ghent, Belgium and Institute of Agricultural and Fisheries Research (ILVO), Belgium. - [Ghent : Faculty of Pharmaceutical Sciences, 2014]. - p 144 [Nr. Estr. 5712]

International Symposium on Hormone and Veterinary Drug Residue Analysis (7th : Ghent, Belgium : 2-5 June, 2014)

Tetracyclines are a widely used class of antibiotics whose applications range from topical medications for humans to premix feed additives for livestock. In the EU legislation the use of Tetracyclines is allowed. Their maximum residue limits (MRL) have been set at different values in various matrices, but no limits have been set for honey. In recent years several works on LC-DAD and LC-MS/MS analysis of Tetracyclines have been published. However, in laboratories with high throughput, the availability of simple, quick and sensitive screening tests is necessary. Immunoassay techniques meet these requirements and, at the same time, are cheap. The aim of this work is the

development of a simple qualitative screening method for Tetracyclines and their epimers in various matrices of animai origin (i.e. muscle, kidney, liver, milk, egg. honey) and water, using a commercial ELISA test (EuroProxima), and the evaluation of its analytical performances according to the European Decision 2002/657/EC criteria. The cross-reactivity of all analytes was verified at 25 tg/kg for kidney, liver and water, 20 p.g/kg for muscle, 10 µg/kg for eggs, 5 µg/kg for milk and honey samples. Doxycycline has then been selected as reference compound for the validation study. The method performances are studied by two laboratories involved in official residues control programs. Difficulties encountered during validation, results and data analysis are discussed.

Menotta°S, Cannavacciuolo°A, Vitellino°M, Accurs o°D, Isani G, Tomassini A, Fedrizzi°G

Bats as environmental indicators? Analysis of some contaminants in Tadarida teniotis species

Dioxin : 34th International Symposium on Halogenated Persistent Organic Pollutants : August 31st - September 5th 2014 Madrid, Spain : program book / editor in chief, Begoña Jiménez. - [s.l. : s.n.], 2014. - 4 p. - 11 bib ref [Nr. Estr. 5920]

International Symposium on Halogenated Persistent Organic Pollutants (34th : Madrid, Spain : August 31st - September 5th 2014)

Merialdi°G, Bardasi°L, Stancampiano L, Taddei°R, Delogu M, Di_Francesco A, Guarniero I, Grilli E, Fustini M, Bonfante E, Giacometti F, Serraino A

Variazione temporale dell'eliminazione fecale di Escherichia coli O157:H7 in un allevamento di bovine da latte autorizzato alla vendita di latte crudo

Ital J Food Safety. - Vol. 3 suppl 1 (2014). - p 24 (P01) [Nr. Estr. 5807]

Convegno Nazionale Associazione Italiana Veterinari Igienisti (AIVI) (24. : Bologna : 10-12 settembre 2014)

Lo scopo della ricerca è stato quello di valutare, tramite uno studio longitudinale, le modifiche temporali nella eliminazione fecale di E. coli O157:H7 in un allevamento di bovine da latte che commercializza latte crudo per il consumo umano diretto. Lo studio è stato effettuato tra ottobre 2012 e settembre 2013 in una tipica stalle di medie dimensioni. L'allevamento era costituito da circa 140 animali (70 capi adulti e 70 giovani). Ventisei animali di ciascuno dei due gruppi (adulti e giovani) sono stati scelti casualmente e sono stati effettuati da ciascun animale 6 campionamenti di feci a distanza di 2 mesi l'uno dall'altro (in totale 284). A ogni campionamento sono stati effettuati, per ciascun gruppo, 3 campioni di acqua (in totale 36) dagli abbeveratoi e 2 campioni di mangime dalla greppia (in totale 24). I campioni sono stati analizzati tramite real time PCT (RTPCR) ed esame colturale. In totale 16 (5,6%) campioni di feci sono risultati positivi tramite RT-PCR e 9 tramite esame colturale. In tutti gli isolati è stata dimostrata la presenza dei geni stx1, stx 2 e eae. Un campione di mangime è risultato positivo tramite RT-PCR; nessun campione di acqua è risultato positivo. L'elaborazione dei dati ha evidenziato in generale una riduzione del numero di campioni positivi nel corso dello studio e una relazione tra la prevalenza dei campioni positivi e la temperatura media ambientale. I risultati dello studio dimostrano che, in una tipica azienda di bovini da latte Italiana, l'eliminazione fecale di E. coli O157:H7 segue il medesimo andamento osservato in altre situazioni; l'aumento della eliminazione fecale nel periodo estivo ha un impatto significativo sulla contaminazione ambientale e sulla sicurezza dei prodotti alimentari in particolare il latte venduto e consumato crudo.

Merialdi°G, Ramini°M, Ravanetti E, Gherri G, Boni lauri°P

Abbattimento della contaminazione da Listeria innocua in prosciutto, pancetta e salame

confezionati sottovuoto tramite trattamento con alte pressioni idrostatiche

Ital J Food Safety. - Vol. 3 suppl 1 (2014). - p 11 (C19) [Nr. Estr. 5804]

Convegno Nazionale Associazione Italiana Veterinari Igienisti (AIVI) (24. : Bologna : 10-12 settembre 2014)

Il presente lavoro ha lo scopo di presentare i risultati dell'applicazione di un trattamento con alte pressioni idrostatiche (HHP) su prodotti di salumeria italiana, valutando l'efficacia di abbattimento della contaminazione superficiale e profonda da Listeria innocua come surrogato di Listeria monocytogenes. Lo studio è stato condotto su tranci di prosciutto crudo, tranci di pancetta e di salami, confezionati sotto vuoto, provenienti da una azienda di trasformazione e su salami prodotti in ambiente sperimentale a partire da un impasto prodotto dalla medesima azienda. Sono stati inoculati 5 ceppi di L.innocua, 4 isolati da prodotti a base di carne suina o in stabilimenti di trasformazione e uno di collezione. Sono state allestite due prove: per la prima prova è stata allestita una contaminazione superficiale di un lotto dei 3 prodotti di salumeria, tramite immersione per 3 min nel brodo di coltura con un livello di contaminazione di almeno 9 log ufc/mL di un inoculo. Al termine dell'immersione i pezzi sono stati lasciati asciugare a temperatura ambiente e quindi riconfezionati sottovuoto. La seconda prova ha previsto una contaminazione profonda dell'impasto di salame tipo felino con un inoculo contenente i 5 ceppi opportunamente diluiti e aggiunti omogeneamente all'impasto. L'impasto è stato quindi insaccato e si è proceduto alla produzione e stagionatura dei salami. Successivamente 10 campioni per prodotto e per prova, sono stati suddivisi casualmente in 2 gruppi da 5 pezzi: i) gruppo TH, campioni sottoposti a trattamento con HHP (6000 bar, 360 sec, T 12- 13℃); ii) gruppo C, campioni di controllo. T utti i campioni sono stati analizzati per la determinazione della carica superficiale e profonda di L. innocua. Su 3 porzioni dei prodotti del gruppo C è stata effettuata la determinazione di pH e Aw. Per ogni prodotto testato la differenza tra le mediane dei log UFC/cm2 rilevate tra i controlli ed i trattati sono state comparate tramite test non parametrico (Kruskal- Wallis test) con $P<0,01$. Nei tranci sottovuoto l'abbattimento ottenuto nei trattati, misurato come log(N/N0), è risultato uguale a -2,29, -2,54 e -2,51 in prosciutto, pancetta e salame rispettivamente, mentre nel salame prodotto sperimentale l'abbattimento è risultato pari a -2,76. Tutte le differenze sono risultate statisticamente significative. Il presente lavoro si proponeva di valutare un trattamento di natura non termica, volto alla riduzione della contaminazione da L. monocytogens, su prodotti di salumeria italiani che possano essere destinati anche all'esportazione in USA. I risultati di questa sperimentazione, necessitano di essere confermati su prodotti differenti e su di un numero maggiore di lotti, ma appaiono, anche in ragione della notevole letteratura disponibile per prodotti differenti (formaggi, ortaggi e frutta), molto promettenti.

Merigo°D, Meletti°F, Bertolassi°R, Andreoli°M, Pavoni°E

Monitoring plan for the presence of gluten in celiac disease food

3rd European Association of Veterinary Laboratory Diagnosticians (EAVLD) Congress : Pisa (Italy), 12-15 October, 2014 : abstract book and final programme / [s.l. : s.n., 2014]. - p 211 - 4 bib ref [Nr. Estr. 5891]

European Association of Veterinary Laboratory Diagnosticians Congress (EAVLD) (3rd : Pisa (Italy) : October 12-15, 2014)

Montaño-Remacha C, Ricotta L, Alfonsi V, Bella A, Tosti ME, Ciccaglione AR, Bruni R, Taffon S, Equestre M, Losio°MN, Carraro V, Fran chini S, Natter B, Augschiller M, Foppa A, Gualanduzzi C, Massimiliani E, Finarelli AC, Borrini BM, Gallo T, Cozza V, Chironna M, Prato R, Rizzo C, Central Task Force on Hepatitis [for National Reference Centre for Emerging Risks in Food Safety, Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia Romagna Losio°MN, Varisco°G, Pavoni°E]

Hepatitis A outbreak in Italy, 2013 : a matched case-control study

EuroSurveillance. - Vol. 19 no 37 (2014). - 6 p. - 26 bib ref (Ultimo controllo 14/10/2014 http://www.eurosurveillance.org/images/dynamic/EE/V19N37/art20906.pdf) [Nr. Estr. 5845]

Between January and May 2013 a hepatitis A (HA) incidence increase was detected in Italy, signalling an outbreak. A retrospective matched case–control study was conducted to identify the source of infection. A case was defined as a resident of any of five regions (Apulia, autonomous province of Bolzano, Emilia-Romagna, Friuli–Venezia-Giulia and autonomous province of Trento), who had symptom onset between 1 January and 31 May2013 as well a positive test for anti-HA virus IgM. We compared each case with four age-and neighbourhood-matched controls. Overall 119 cases and 419 controls were enrolled. Berries were found as the main risk factor for HA (adjusted odds ratio (ORadj): 4.2; 95% confidence interval (CI): 2.5–7.0) followed by raw seafood (ORadj: 3.8; 95% CI: 2.2–6.8; PAF: 26%). Sequencing the virion protein (VP)1-2a region from 24 cases yielded a common sequence (GenBank number: KF182323). The same sequence was amplified from frozen mixed berries consumed by some cases as well as from isolates from Dutch and German HA patients, who had visited some of the affected Italian provinces during the outbreak. These findings suggested berries as the main source of the Italian outbreak. Control measures included voluntary recall of the confirmed frozen mixed berry batches and a trace-back investigation was initiated. The Ministry of Health website recommends frozen berries to be cooked for two minutes before eating.

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

Multiclass determination of antibiotic residues in milk by LC-HRMS (Orbitrap)

7th Intenational Symposium on Hormone and Veterinary Drug Residue Analysis : Ghent, Belgium, 2-5 June, 2014 : abstract book / organized by Faculty of Veterinary Medicine, Faculty of Pharmaceutical Sciences, University of Ghent, Belgium and Institute of Agricultural and Fisheries Research (ILVO), Belgium. - [Ghent : Faculty of Pharmaceutical Sciences, 2014]. - p 152 [Nr. Estr. 5714]

International Symposium on Hormone and Veterinary Drug Residue Analysis (7th : Ghent, Belgium : 2-5 June, 2014)

Since several antibiotics are used in livestock production, the increasing application of multiclass procedures can undoubtedly contribute to improve the cost effectiveness of the analytical controls. For this purpose a multiclass method for the determination of nine different veterinary drug families (amphenicols, beta-lactams, lincosamides, macrolides, pleuromutilins, quinolones, rifamycins, sulphonamides and tetracyclines) was developed in bovine milk. More than sixty compounds were analysed including parent drugs and their metabolites. After protein precipitation, centrifugation and defatting, the milk extracts were injected into an Ultimate 3000TM system coupled with a Thermo Scientific Q ExactiveTM hybrid quadrupole-Orbitrap mass spectrometer. The LC separation was performed using a core-shell analytical column (Poroshell 120 EC-C18) with methanol and 0.1% formic acid as mobile phases in gradient mode within 30 minutes. The analytes were determined by fullscan and data-dependent precursor ion fragmentation. The confirmation criteria were relative retention time, accurate precursor mass, isotopic pattern and fragment ions. The preliminary results indicated satisfactory recoveries and precisions for most of the investigated analytes.

Nocetti M, Pizzamiglio V, Cosciani-Cunico° E, Damin elli° P

Basi scientifiche della sicurezza alimentare del Parmigiano Reggiano

Ital J Food Safety. - Vol. 3 suppl 1 (2014). - p 13 (C21) [Nr. Estr. 5795]

Convegno Nazionale Associazione Italiana Veterinari Igienisti (AIVI) (24. : Bologna : 10-12 settembre 2014)

Il Parmigiano Reggiano è un prodotto la cui produzione con modalità riferibili a quelle attuali risale almeno ad otto secoli fa mentre nella forma attuale la produzione è codificata e regolata dal

Consorzio di tutela fin dagli anni ‘50. Se esistono preoccupazioni sulla sicurezza di taluni formaggi molli e semiduri a latte crudo, è acclarata da tempo, anche da specifiche indagini epidemiologiche indipendenti, la sicurezza dei formaggi a pasta dura come il Parmigiano Reggiano; ciò che rende sicuro il Parmigiano Reggiano è l’effetto sinergico di sistemi enzimatici antimicrobici attivi nel latte crudo, la scomparsa dei substrati zuccherini associata alla veloce acidificazione, la elevata temperatura cui viene cotta la cagliata, la salatura e la progressiva diminuzione dell’attività dell’acqua. Per validare in modo specifico i dati microbiologici sopra descritti, per verificare cioè sperimentalmente la effettiva capacità del processo produttivo del Parmigiano Reggiano div bonificare il prodotto dalla eventuale presenza di patogeni, sono state eseguite varie prove sperimentali, finalizzate a supportare scientificamente l’insieme del processo di produzione del Parmigiano Reggiano, focalizzando l’attenzione sulle fasi più importanti del processo produttivo: l’affioramento del latte in caldaia, la fase di cottura e giacenza sotto siero della cagliata, la stagionatura. I fattori chiave che impediscono la sopravvivenza dei batteri potenzialmente patogeni nel Parmigiano Reggiano sono la temperatura raggiunta nella fase di cottura (55℃ e anche oltre), la permanenza della cagliata sotto siero a questa temperatura per circa 60 minuti e il rapido sviluppo dei batteri lattici termofili, che determinano un repentino abbassamento del pH nelle prime ore dopo la caseificazione ed esercitano un forte antagonismo competitivo nei confronti delle altre specie microbiche. L’utilizzo e l’elaborazione dei dati tecnologici di processo mediante l’impiego di modelli matematici di microbiologia predittiva, ha permesso la validazione del processo di produzione del Parmigiano Reggiano definendone parametri di sicurezza igienico sanitaria spendibili a livello internazionale. La tecnologia di trasformazione, dove questi fattori si combinano e agiscono in sinergia, unitamente alla buona qualità microbiologica del latte, prodotto con l’applicazione di rigorosi disciplinari, garantisce l’assoluta sicurezza igienica del Parmigiano Reggiano e ne permette dunque l’esportazione nel mondo, nel rispetto dei più rigorosi criteri igienico sanitari.

Pavoni°E, Barbieri°I, Bertasi°B, Lombardi°G, Co rdioli°P, Losio°MN

Studio di monitoraggio e caratterizzazione molecolare del virus dell’Epatite E in allevamenti suini nella provincia di Brescia

Ital J Food Safety. - Vol. 3 suppl 1 (2014). - p 28 (P12) [Nr. Estr. 5799]

Convegno Nazionale Associazione Italiana Veterinari Igienisti (AIVI) (24. : Bologna : 10-12 settembre 2014)

Il virus dell’Epatite E (HEV) è costituito da un capside, privo di envelope. L’ RNA genomico è di circa 7,5 kb e contiene tre ORF. La ORF1 codifica per le proteine non strutturali, l’ORF2 codifica per la proteina del capside, e la ORF3 codifica per una fosfoproteina. HEV è stato recentemente classificato come il membro prototipo del genere Hepevirus, famiglia Hepeviridae. Anche se i ceppi di HEV appartengono ad un unico sierotipo, esistono almeno quattro genotipi principali (G1-G4). E’ importante sottolineare come ceppi appartenenti appartenenti al G3 e al G4 siano stati ritrovati anche nei suini. Il virus si trasmette all’uomo per via oro-fecale ed è l’agente eziologico dell’Epatite E, una patologia autolimitante trasmessa entericamente e di tipo non-A non-B. Poichè HEV è stato isolato sia nell’uomo, nei maiali, nei cervi e nei cinghiali, l’Epatite E si può considerare una zoonosi. La contaminazione può avvenire attraverso il contatto con i suini in particolari categorie lavorative come i veterinari, gli addetti ai macelli e gli allevatori che mostrano una maggiore prevalenza di anticorpi anti-HEV. L’infezione può essere trasmessa anche attraverso il consumo di prodotti a base di carne contaminati, soprattutto se poco cotti o brevemente stagionati. Dal momento che nella provincia di Brescia è molto diffusa l’attività di allevamento suinicolo, l’obiettivo del presente studio è stato quello di valutare la circolazione di HEV tra le aziende di produzione e di individuare una possibile correlazione tra ceppi. 183 campioni di feci sono stati raccolti da suini di 2-4 mesi di vita, in 17 allevamenti nella provincia di Brescia. L’RNA virale è stato estratto utilizzando un kit commerciale con membrane di silice e retrotrascritto. E’ stata eseguita una nested PCR, mediante l’utilizzo di primer degeneri specifici per la regione ORF2 del genoma. L’analisi filogenetica è stata eseguita sul set di dati allineati ed è stato generato un albero senza radice. Tra i 183 campioni di feci analizzati, 28 (15,3%) sono risultati positivi per HEV. L’analisi filogenetica ha mostrato come i ceppi di HEV avessero omologia di sequenza con ceppi G3 precedentemente rilevati in Europa. L’importanza economica dell’Epatite E sulla produzione di suini e sul consumo di carne necessita di ulteriori

indagini. In Italia, l'allevamento dei suini ha un profondo impatto sull'economia agro-alimentare, dove le tradizioni sono strettamente legate al consumo di carne di suino. La sopravvivenza di HEV in alcuni prodotti tipici italiani, come salumi e insaccati, deve essere valutata sia nelle fasi di produzione primaria, sia nelle fasi di trasformazione che durante la stagionatura. I dati ottenuti sono stati considerati indicativi come punto di partenza per uno studio più approfondito soprattutto su una correlazione tra HEV suino e casi sporadici di Epatite E nell'uomo.

Pavoni°E, Chiapponi°C, Baioni°L, Barbieri°I, Bo rrini B, Finarelli AC, Fridel M, Gualanduzzi C, Nocera L, Varisco°G, Pongolini°S, Losio°MN

Epidemia di epatite A e consumo di frutti di bosco : correlazione tra casi umani e alimento in Lombardia ed Emilia-Romagna

V Workshop Nazionale di Virologia Veterinaria : Teramo, 26-27 giugno 2014 : riassunti / a cura di Roberto Delogu ... [et al.]. - Roma : Istituto Superiore di Sanità, 2014. - (ISTISAN congressi ; 14/C3) p 72 [Nr. Estr. 5745]

Workshop Nazionale di Virologia Veterinaria (5. : Teramo : 26-27 giugno 2014)

In Italia, tra gennaio 2013 e febbraio 2014, sono stati notificati 1.463 casi di epatite A di cui 161 confermati come correlati al consumo di frutti di bosco. In totale, tra aprile 2013 (periodo in cui è stata rilevata la prima correlazione tra infezione e consumo di frutti rossi) e aprile 2014, presso l'IZSLER di Brescia sono stati analizzati 493 campioni ufficiali di frutti di bosco surgelati tra cui: 331 mix di frutti di bosco, 62 confezioni di lamponi, 36 di ribes, 21 di fragole, 18 di mirtillo nero e 5 di mirtillo rosso. Di questi, 134 sono pervenuti dalla Regione Emilia-Romagna, 24 dalla Lombardia ed i restanti 315 dal Trentino A.A., Veneto, Toscana, Umbria, Marche, Lazio, Abruzzo e Calabria. Nell'ambito dell'approfondimento epidemiologico del focolaio presente nelle due regioni di competenza dell'IZSLER, 75 campioni di feci provenienti da altrettanti casi umani segnalati di epatite A sono stati esaminati per la ricerca del virus dell'epatite A (HAV) con metodiche biomolecolari. Per le analisi di rilevamento, è stato eseguito un metodo accreditato presso l'IZSLER, basato su una seminested-PCR in grado di amplificare la regione genomica maggiormente conservata VP1-VP3. Per le analisi genetiche, i campioni positivi sono stati sottoposti a nested-PCR, specifica per la regione variabile VP1/2a ed è stato sequenziato il frammento derivato di 520 nucleotidi. I frammenti sequenziati sono stati allineati con sequenze di HAV presenti in GenBank (tra cui la sequenza outbreak HAV genotipo IA [KF182323] isolata in feci umane e legata al consumo di frutti di bosco) ed è stata condotta l'analisi genetica. Fra i frutti di bosco, 12/493 (2,4%) sono risultati positivi ad HAV; tuttavia, la caratterizzazione genomica è stata possibile solo per 3 di essi (tutti mix di frutti rossi) altamente correlati (> 99% di identità nucleotidica) alla sequenza outbreak. Fra i campioni umani, 61 sono risultati positivi per HAV e di 59 è stato possibile ottenere la sequenza. Del frammento esaminato, in 48/58 campioni la sequenza è risultata identica o altamente correlata alla sequenza outbreak. Fra i restanti campioni, 7 appartenevano al genotipo IA non-outbreak, 3 al genotipo IIB e 1 al genotipo IIIA. Questi dati indicano che l'83% dei casi umani genotipizzati presso l'IZSLER presenta la sequenza virale outbreak o una sequenza ad essa altamente correlata. Inoltre le sequenze di HAV da frutti di bosco sono pressoché identiche ai casi umani rafforzando l'ipotesi che tale alimento sia stato una fonte comune di infezione.

Pavoni°E, Cosciani_Cunico°E, Finazzi°G, Bilei S, Capuano F, Delibato E, Gattuso A, Losio°MN

Study of the prevalence of pathogens in sprouts : risk assessment and risk communication

3rd European Association of Veterinary Laboratory Diagnosticians (EAVLD) Congress : Pisa (Italy), 12-15 October, 2014 : abstract book and final programme / [s.l. : s.n., 2014]. - p 220 - 2 bib ref [Nr. Estr. 5892]

European Association of Veterinary Laboratory Diagnosticians Congress (EAVLD) (3rd : Pisa (Italy) : October 12-15, 2014)

Pavoni°E, Losio°MN, Chiapponi°C, Rizzo C, Ciccag lione AR, Bruni R, Di_Pasquale S, Guizzardi S, Cappelletti B

Hepatitis A virus (HAV) outbreak in Italy : correlation between clinical cases and foodstuffs

European symposium on food safety : 7-9 May 2014 Budapest, Hungary / [s.l. : s.n., 2014]. - T6-03 [Nr. Estr. 5692]

European symposium on food safety : Budapest, Hungary : 7-9 May 2014)

Introduction: In Italy, from January to September 2013, 1,125 cases of hepatitis A were reported, corresponding to a 2.4 fold increase of notifications compared to the same period in 2012. Northern regions accounted for 59% of total cases. The case-control study conducted for the identification of risk factors suggested a strong association of the disease with the consumption of mixed frozen berries. The sequencing of HAV genome in mixed frozen berries and clinical cases isolates showed 100% similarity, corresponding to HAV1A strain. As a consequence, Italy notified through the RASFF the HAV findings Moreover, the Ministry of Health started the tracing back of the food item. The investigation identified many dealers that received consignments of berries from different foreign countries. Following the RASFF notification, different regions recalled the positive lots and advised the population regarding the use of the leftover frozen mixed berries. Purpose: To find a correlation between clinical cases and foodstuffs and trace back the contaminated batches to the source. Methods: From May to December 2013, 1,889 food samples (including 1,140 berries) were tested for HAV. Analyses were performed according to an in house accredited method. Virus genotyping was performed on the VP1/2A region of the viral genome, and by Next Generation Sequencing on the whole genome. Results: HAV sequences (454-458 nt) from 2 berries samples showed 100% identity to the outbreak strain; a shorter sequence (349 nt) obtained from a third sample showed 99.7% identity, due to 1 nt difference. Significance: Analysis of the case interviews on risk factors identified consumption of frozen mixed berries. This assumption was supported by the detection of HAV in these. The surveillance on berries and other vegetables potentially carrier of the HAV has been intensified, to provide a picture of the distribution of the contaminated items and the risk of exposure.

Pellicciotti°S, Moretti S, Saluti G, Galarini R, D usi°G

Stability of antibiotics in solution : a critical issue during the development of a multi-class method by LC-HRMS (Orbitrap)

7th Intenational Symposium on Hormone and Veterinary Drug Residue Analysis : Ghent, Belgium, 2-5 June, 2014 : abstract book / organized by Faculty of Veterinary Medicine, Faculty of Pharmaceutical Sciences, University of Ghent, Belgium and Institute of Agricultural and Fisheries Research (ILVO), Belgium. - [Ghent : Faculty of Pharmaceutical Sciences, 2014]. - p 159 [Nr. Estr. 5713]

International Symposium on Hormone and Veterinary Drug Residue Analysis (7th : Ghent, Belgium : 2-5 June, 2014)

Knowledge of the stability of reference materials (standards) in solution is fundamental to assure the traceability of the measurement process in analytical chemistry. Otherwise the laboratory is forced to frequently prepare fresh standard solutions wasting much time and resources especially when a high number of compounds is involved. Due to the lack of complete stability data in literature for antibiotics and their metabolites in solution, the appropriate solvents, concentrations, storage conditions and stability times are the main characteristics to be considered during the development of an analytical method aimed to determine antimicrobial residues in food. So our preliminary concern was to evaluate the suitable dissolving and storage conditions both for individual stock and mixed working standard solutions. The compounds considered belong to nine different classes: amphenicols, beta-lactams (penicillins and cephalosporins), macrolides, lincosamides, pleuromutilins, quinolones, rifamycins, sulfonamides and tetracyclines. As expected penicillins are the most critical group due to their generally low stability time and their breakdown in methanolic

solutions. Next to the penicillins, degradation of tetracyclines and their epimers was found to be critical and, finally, potential interactions of some macrolides with the container materials were also observed.

Ricchi°M, De_Cicco°C, Kralik P, Babak V, Boniotti °MB, Savi°R, Cerutti°G, Cammi°G, Garbarino°C, Arrigoni°N

Evaluation of viable Mycobacterium avium subsp. paratuberculosis in milk using peptide-mediated separation and Propidium Monoazide qPCR

FEMS Microbiol Lett. - Vol. 356 (2014). - p 127-133. - 27 bib ref [Nr. Estr. 5709]

The causative agent of paratuberculosis in ruminants, Mycobacterium avium subsp. paratuberculosis (MAP), although still a matter of debate, has been linked with Crohn's and other human diseases. The availability of rapid methods for assessing the viability of MAP cells in food, in particular milk, could be of great use for risk management in food safety. MAP viability is generally assessed using culture techniques that require prolonged incubation periods for the growth of MAP. To differentiate between viable and nonviable MAP cells in milk samples, this study explores the combination of two already described techniques: peptide magnetic bead separation followed by Propidium Monoazide qPCR. Using an Ordinal Multinomial Logistic Regression model to analyze the results obtained after spiking milk samples with mixtures containing different percentages of viable/dead cells, we were able to assess the probability of the viability status of MAP found in milk. This model was applied to contaminated pasteurized milk to ascertain the efficacy of heat treatment in MAP killing. The method reported herein can potentially be used for direct detection of MAP viability in milk.

Rubini°S, Bolognesi°E, Boschetti E, Fedrizzi°G, Menotta°S, Pompei M, Bergamini M, Barbieri S, Milandri A

Le biotossine marine nei molluschi eduli lamellibranchi : quali rischi per la salute dei consumatori

47°Congresso Nazionale Società Italiana di Igiene (SITI) : 1-4 Ottobre 2014 Riccione : Poster / [s.l. : s.n., 2014]. - p 186-187 [Nr. Estr. 5836]

Congresso Nazionale Società Italiana di Igiene (SITI) (47. : Riccione : 1-4 Ottobre 2014)

Rubini°S, Pavoni°E, Bertasi°B, Suffredini E, Coz zi L, Bardasi°L, Melloni°R, Bolognesi°E, Lilliu°E, Cova M, Guidi E, Lupi S, B ergamini M

Vibrio parahaemolyticus nei molluschi bivalvi : quali rischi per i consumatori?

Atti del III°Convegno Nazionale Società Italiana d i Ricerca Applicata alla Molluschicoltura (SIRAM) : Udine, 7 novembre 2014 / [s.l. : s.n., 2014]. - 2 p. - 4 bib ref [Nr. Estr. 5883]

Convegno Nazionale Società Italiana di Ricerca Applicata alla Molluschicoltura (SIRAM) (3. : Udine : 07 novembre 2014)

Vibrio parahaemolyticus è un microrganismo alofilo naturalmente presente nelle acque costiere di tutto il mondo. V. parahaemolyticus è un patogeno enterico responsabile di gastroenteriti associate a consumo di alimenti di origine ittica e, in particolare, molluschi crudi o insufficientemente cotti. La sintomatologia nell'uomo compare di solito entro 24 ore ed è caratterizzata da diarrea, vomito, emicrania, nausea, crampi addominali e, a volte, febbre (Su e Liu, 2007). In genere la sintomatologia regredisce entro 3 giorni ma, in individui immuno-compromessi, l'esito di questa tossinfezione può essere letale. In alcuni casi il germe è stato isolato da lesioni cutanee (localizzazione extra-intestinale). Il meccanismo attraverso il quale V. parahaemolyticus infetta l'uomo non è stato

ancora completamente chiarito ma è ormai assodato che la patogenicità dei ceppi è associata alla loro capacità di produrre tossine TDH (thermostable direct hemolysin) e/o TRH (TDH-related hemolysin) (Di Pinto A. et al., 2008). La maggior parte dei focolai di tossinfezione sono stati segnalati in Asia, Sud America, USA e in alcuni Paesi africani. In Europa le segnalazioni sono state, finora, piuttosto scarse (Suffredini et al., 2014). Obiettivo di questa indagine è stato quello di verificare la prevalenza di V. parahaemolyticus nei molluschi allevati e raccolti nelle acque costiere della regione Emilia Romagna, valutare il potenziale patogeno dei ceppi isolati e infine analizzare l'eventuale correlazione con le segnalazioni di tossinfezioni associate al consumo di molluschi e/o potenzialmente sostenute da V. parahaemolyticus.

The aims of this work were a) evaluation of the prevalence of Vibrio parahaemolyticus in molluscs harvested in Emilia Romagna; b) evaluation of the presence of pathogenic strains and c) assessment of a possible effect on the public health. We examined 755 samples of molluscs (519 Manila clams and 236 mussels). Thirty-three percent of the samples were positive for V. parahaemolyticus and the percentage of potentially pathogenic strains was 14.5% of total V. parahaemolyticus isolates.

Sangiorgi° E

Ascorbic and erythorbic acid determination in food : the use of experimental design to develop an UHPLC-UV method

Abstract book 38th International Symposium on Capillary Chromatography (ISCC) and 11th GCxGC Symposium : May 18-23, 2014, Riva del Garda, Italy / edited by L. Mondello. - Messina : Chromaleont a start-up of the University of Messina, 2014. - p 499 [Nr. Estr. 5846]

International Symposium on Capillary Chromatography : 38th GCxGC Symposium : 11th : Riva del Garda, Italy : May 18-23, 2014)

Ascorbic acid and its sodium and calcium salts are used as preservative antioxidants in food without limitation (quantum satis) and are classified in the Europe (Reg CE 1129 2011) as E 300, E 301 and E 302 respectively. Erythorbic acid (isoascorbic acid) and its sodium salt have the E315 and E316 European classification with a specified limit of addiction (500 mg/kg) for meat products and 1500 mg/kg for frozen fish. Therefore is essential to distinguish between ascorbic and isoascorbic acids in their determination. One of the most diffused HPLC-UV method uses metaphosphoric acid as extracting media and diluted phosphoric acid as mobile phase: is simple and effective must it lacks in robustness. An experimental design approach was used to develop a rapid, robust and likewise simple and effective UHPLC-UV method to determine these two preservatives. The effect of four factors, column temperature, acetonitrile percentage, flow and injection volume, on the resolution and asymmetry of the ascorbic and isoascorbic peaks (response variables) was evaluated using a fractional factorial design. Considering this, a 24-1 factorial design was chosen, which involved fourteen experiments, in triplicate, carried out in randonn order and five center points to estimate the experimental error. By using this design, the four factors were tested at two different experimental levels and regression algorithms have been used to simulate the experimental responses and to search the optimal settings of the experimental factors. The optimized UHPLC-UV method was applied in the determination of ascorbic and isoascorbic acid in different food sannples.

Santagostino SP, Forlani A, Roccabianca P, Fedrizzi° G, Malandra R, Ranghieri V, Zaffra N, Ghisleni G

Metal exposure and toxicology in selected fish species from the Mediterranean sea : risk assessment for human consumption

2nd Joint European Congress of the ESVP, ESTP and ECVP : 32nd Meeting of the European Society of Veterinary Pathology, 12th Meeting of the European Society of Toxicotogic Pathology, 25th Meeting of the European College of Veterinary Pathology : "Cutting edge pathology" : 27th - 30th August 2014, Berlin, Germany : programme and abstract book / [s.l. : s.n., 2014]. - p 260 [Nr. Estr. 6032]

Meeting of the European Society of Veterinary Pathology : 32nd Meeting of the European Society of Toxicotogic Pathology : 12th Meeting of the European College of Veterinary Pathology : 25th : Berlin, Germany : 27th — 30th August 2014)

Introduction: Myriads of toxic substances are released into our environment daily, either deliberately manufactured or accidentally produced. Aquatic systems throughout the world are increasingly under a wide array of anthropogenic stressors. However, some of aquatic environments can sustain fish populations, indicating that they are able to tolerate toxic levels of metals. Aim: The concentration levels of different chemical compounds in pelagic and benthopelagic fish species from the Mediterranean sea were examined by testing specific tissues involved in the bioaccumulation pathway with GC/MS. Materials and Methods: Fish samples were collected monthly from Aprii 2013 to Septem ber 2℃13. No abnormalities were evid enced on macroscopical examination. The presence of twenty-seven heavy metals and minerals (Hg, Na, Mg, Al, K, Ca, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Se, Sr, Mo, Ag, Cd, Sn, Sb, Ba, Ti, Pb, Th, U) was investigated in livers and muscles collected from Pagellus bogaraveo, Dentex dentex, and Thunnus thynnus from the Mediterranean sea. The mean concentration of each element was calculated. A comparison to the provisional tolerable daily or weekly intake or to the tolerable upper intake established by the Joint FAO/WHO Expert Committee on Food Additives and the EFSA was assessed. The maximum safe consumption (MSC) for adult intakes was achieved for each element with an established safety limit. Results: Hg, Fe, Co, Ni, Zn, As, Se, Sr, Mo, Cd, Sn, Ba were variably present at higher leve(within muscular samples of the 3 different fish species. The MSC calculated for mercury lead to a limited recommended weekly intake for all the tested fish species. Conclusions: This study provides preliminary information on metal concentration in the edible part of three commerciai fish species. Based on MSC, mercury concentration in muscle of Pagellus bogaraveo, Dentex dentex, Thunnus thynnus exhibits a risk for human consumption.

Savi°R, Ricchi°M, Bolzoni°L, Pongolini°S, De_Ci cco C, Licata E, Tamba°M, Panella G, Cerutti°G, Cammi°G, Arrigoni°N

Quantitative survey on bulk tank milk contamination by Mycobacterium avium subsp. paratuberculosis (MAP) in Emilia-Romagna Region

12th International Colloquium on Paratuberculosis : Parma, Italy, 22/26 June 2014 : program and abstracts / [s.l. : s.n., 2014]. - p 188 (Poster P-06.8) [Nr. Estr. 5763]

International Colloquium on Paratuberculosis (ICP) (12th : Parma, Italy : 22/26 June 2014)

Milk can be contaminated by Mycobacterium avium subsp. paratuberculosis (MAP) through both direct excretion in the milk and fecal contamination during milking of soiled udders. Many extensive surveys have been carried out on bulk milk, but very few quantitative data are available; for this reason it is very difficult to estimate the exposure of consumers to MAP through the consumption of contaminated milk. A qualiquantitative survey on bulk tank milk (BTM) was carried out during the period March-September 2013, testing almost all bovine dairy herds in the Emilia-Romagna Region (3052 samples). MAP detection in BTM was performed by a peptide-magnetic separation (PMS) protocol, followed by IS900- qPCR. Briefly, 50 ml of milk were centrifuged (15' at 2500g) and the pellet was suspended in 1 mi of PBS. PMS capture of MAP was done by addition of an equal volume of magnetic beads coated with peptides aMp3 and aMptD. After capture, DNA extraction was performed by Chelex resin. Quantitative PCR was done targeting IS900 and absolute quantification of MAP cells was performed calibrating the assay with an IS900-plasmíd standard solution [LOD: 1.3-1.6x100 cells/ml (10 replicates), corresponding to 23-67 CFU/ml]. Overall, 167 (5.47%) samples were positive by IS900 qPCR. Considering the efficiency of the detection system, only 12 out of 167 (7.19%) were estimated to contain more than 100 MAP cells/ml, while 83 (49.70%) ranged between 10 and 100 cells/ml and 72 (43.11%) less than 10 cells/ml. Although MAP contamination of bulk milk in dairy herds of Emilia Romagna Region is limited, this survey sug-gests that the exposure cannot be considered negligible.

Savi° R, Ricchi° M, Pongolini° S, Leo° S, Cammi° G, Garbarino° C, Arrigoni° N

Survey on the presence of MAP in ground beef from an industrial meat plant

12th International Colloquium on Paratuberculosis : Parma, Italy, 22/26 June 2014 : program and abstracts / [s.l. : s.n., 2014]. - p 208 (Oral O-07.3) [Nr. Estr. 5758]

International Colloquium on Paratuberculosis (ICP) (12th : Parma, Italy : 22/26 June 2014)

Paratuberculosis, at advanced stages of the disease, is characterized by a systemic dissemination of Mycobacte-rium avium subsp. paratuberculosis (MAP) in tissues and organs. Moreover, MAP has been associated with Crohn's Disease and other human pathologies. Dairy and beef cattle infected with Paratuberculosis, are routinely sent to slaughter and the consumption of their meat could be a possible route of human exposure to MAP. MAP has been demonstrated in muscles and lymph nodes of clinical and asymptomatic cows. However, few studies on the pres-ence of MAP in ground beef are available. We carried out a survey on the ground beef produced in an industrial meat processing plant. During the period November 2013 - February 2014, around 120 samples, each representing a single batch of ground meat, were col-lected and analyzed by both qPCR and a liquid culture method. Three ml of sterile saline solution were added to 3 g of meat; after homogenization, the liquid phase was collected, centrifuged and DNA was extracted from the pellet with a commerciai kit (BioSprine 96 One-For-All Vet, QIAGEN); qPCR was then performed targeting IS900. The liquid culture was performed from the same homogenization step described above, followed by decontamina-tion with hexadecylpyridinium chloride 0.75%. The pellet was suspended in 1 ml of PBS, inoculated in para-JEM® Broth and placed into the Versa-TREIC instrument (Thermo Scientific). Positive samples were confirmed by F57-PCR. The limit of detection (LOD) of both methods was around 6.3 x 100 MAP cells/g (corresponding to 1.1 x 100 CFU/g) for two MAP strains tested (ATCC 19698 and a field strain). No samples were positive by direct IS900 qPCR, while one sample resulted positive to culture (F57-PCR confirmed). Our preliminary data suggest that presence of live MAP in raw minced meat, although possible, is rare, namely less than 1%. Moreover, the leve! of exposure for humans could be considered even lower following cooking of meat.

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Contaminazione da Listeria monocytogenes del latte crudo al distributore automatico : un case report

Ital J Food Safety. - Vol. 3 suppl 1 (2014). - p 31 (P19) [Nr. Estr. 5801]

Convegno Nazionale Associazione Italiana Veterinari Igienisti (AIVI) (24. : Bologna : 10-12 settembre 2014)

A seguito della rilevazione, nell'ambito dei controlli ufficiali previsti per i distributori automatici di latte crudo, di una contaminazione persistente del latte di massa da parte di Listeria monocytogenes, abbiamo sottoposto ad indagine batteriologica le 102 bovine in lattazione dell'allevamento, individuando una sola bovina con escrezione persistente di Listeria, nonostante il contenuto in cellule somatiche risultasse nella norma (125-135.000 CSS/mL). Andando ad esaminare singolarmente il latte dei quattro quarti, si evidenziava la presenza di Listeria nel latte del solo quarto anteriore destro, quantificabile in 90-210 UFC/mL, che presentava un contenuto in cellule somatiche di 299.000/mL. La bovina è stata sottoposta a terapia antibiotica mirata ripetuta, a seguito della quale il contenuto in cellule somatiche si è ridotto a 19.000/mL, pur persistendo l'escrezione di Listeria (300 UFC/mL). A seguito della macellazione della bovina, con immediata negativizzazione del latte di massa, L. monocytogenes è stata isolata dal parenchima mammario e dai relativi linfonodi. I 13 ceppi isolati nell'arco di un periodo di circa 3 mesi, dal latte del distributore, dal latte della bovina, dal parenchima mammario e dai linfonodi sopramammari sono stati sottoposti ad analisi genetica, mediante PFGE e sequenziamento (Illumina MiSeq), per indagare la natura clonale della contaminazione. La PFGE ha confermato che tutti i ceppi di Listeria monocytogenes isolati avevano lo stesso profilo (LMAS_PR.0069), indicando la clonalità dei ceppi, confermata anche dall'analisi degli SNPs. Infine, la comparazione del genoma dei ceppi isolati con quelli di ceppi di

Listeria disponibili, ha confermato l'appartenenza al sierotipo 1/2a, a patogenicità nota per l'uomo.

Serraino A, Bonilauri°P, Arrigoni°N, Ostanello F, Ricchi°M, Marchetti G, Bonfante E, Albonetti S, Giacometti F

Quantitative risk assessment of Mycobacterium avium subsp. paratuberculosis survival in pasteurized milk in three dairy plants in Italy

Food Control. - Vol. 45 (2014). - p 120-126. - 53 bib ref [Nr. Estr. 6049]

The objective of this study was to carry out a quantitative risk assessment (QRA) of Mycobacterium avium subsp. paratuberculosis (MAP) survival in pasteurized milk produced by industrial dairy plants. Data were collected in three dairy plants (A, B and C) located in three different Italian regions and processing 38.75 (plant A), 89.29 (plant B) and 190.56 million litres (Plant C) of milk yearly. Plants A and plant C produce pasteurized milk, soft and hard industrial cheeses and yogurt; plant B produces only pasteurized milk. In-line milk filter (ILMF) samples and/or bulk milk samples were collected from all 569 herds delivering milk to the three dairy plants. Samples were analysed by quantitative real-time PCR (qPCR). The QRA considered the presence of MAP in ILMF and in bulk milk of all the dairy herds delivering milk to the three investigated dairy plants, estimating MAP concentration in raw milk on the basis of these data, the dilution effect due to mixing milk in collecting trucks and in plant silos, and the effect of pasteurization in reducing the MAP load. The expected fraction of litres of pasteurized milk with 0 MAP would be 99.02%, 99.45% and 99.12%, in plants A, B and C respectively, and an overall percentage 0.55% to 0.98% of pasteurized milk having a MAP contamination >0 colony forming units (CFU)/l and 0.04%e0.11% of pasteurized litres with a MAP contamination > 100 CFU/l was predicted. A daily variation was observed in the proportion of MAP-contaminated litres of milk. The study demonstrated that milk in the dairy plants investigated may be a source of MAP exposure for humans. The between-herd and within-herd MAP apparent prevalence in the investigated areas are likely comparable to those in other areas in Italy, Europe and North America, and the results are applicable to other geographical areas.

Trevisani M, Diegoli G, Fedrizzi°G

Chemical hazards and their control

Meat inspection and control in the slaughterhouse / edited by Thimjos Ninios ...[et al.]. - Oxford : Wiley-Blackwell, 2014. - p 354-382 [Nr. Estr. 5813]