New book
Kazda, J., Pavlik, I., Falkinham III, J.O., Hruska, K. (Eds.)
The Ecology of Mycobacteria: Impact on Animal's and Human's Health
Springer 2009 (February), Approx. 260 p., Hardcover

New publications in the FOOD PATHOGENS DIGEST database (269-271)

Food-borne zoonoses, the EU zoonosis legislation and the prospects for food safety and consumer protection during primary animal production
Wiener Klinische Wochenschrift, 120, 587-598

Zoonoses are diseases that are transmitted naturally between animals and humans. The control of food-borne zoonoses within the European Union is a prerequisite for assuring a functional internal market and consequently represents an important item on the political agenda. Unfortunately, until recently, gaining a clear view of the current incidence of food-borne zoonoses and the prevalence of its causative agents has been frustrated by the absence of reliable monitoring and reporting systems. Similarly, it has become clear that, Europe wide, one has witnessed only limited success with regard to the control of important food-borne agents such as Salmonella spp. The European Union has adopted legislation to remedy this situation and to control food-borne zoonoses in primary production. This contribution discusses the incentives for introducing EU Directive 2003/99/EC and EU Regulation No. 2160/2003, summarises their essentials and discusses major ramifications of both pieces of legislation for the prevention of food-borne zoonoses. It is concluded that there is reason for cautious optimism concerning human salmonellosis, while for other food-borne zoonoses there should be a call for action

270     De Krom, M.P.M.M. (2009)
Understanding Consumer Rationalities: Consumer Involvement in European Food Safety Governance of Avian Influenza
Sociologia Ruralis, 49, 1-19

Avian influenza is one more of the recent food scares inciting shifts in European food safety governance, away from a predominantly science-based approach towards one involving scientists, policymakers, actors in the food-supply chain and consumers. While these shifts are increasingly receiving scholarly attention, sociological insight into the involvement of consumers and other actors across the multiple levels of today's food safety governance requires further development. This article aims at contributing to the understanding of consumer perspectives on food safety governance by expounding the results of an explorative research among Dutch consumers, which focused on food risks related to avian influenza. To give ample room for the construction of contextual knowledge, consumers of poultry meat were questioned at various retailers by applying a qualitative interviewing method. From this research, it is concluded that multiple consumer rationalities about food safety governance exist. As a consequence of the existence of these multiple consumer rationalities, a differentiated governance approach to restore or retain consumer confidence in food safety in view of food-related risks is more likely to be pertinent than a 'one-size-fits-all' approach
A rapid, cheap and sensitive detection method of Mycobacterium avium subsp. paratuberculosis (MAP) in raw milk was needed for routine usage. We developed two duplex real time qPCR systems specific for MAP detection. These real time qPCR assays amplify the multicopy element IS900 for qualitative analysis and the single copy element F57 for quantitative analysis. Both assays incorporate an internal amplification control amplified with the same primers as the targets and the same probes are used in both assays. The specificity of the assays was confirmed by the testing of 6 different MAP isolates, 12 isolates of other mycobacteria or bacterial species and 4 different mammalian DNAs. The sensitivity of the developed assays and isolation efficiency were demonstrated through the analysis of raw milk samples artificially contaminated with MAP cells and with plasmids containing cloned fragments of the targets (IS900 and F57). The developed assays for milk analysis were applied to samples from one farm with two faecal shedding cows. Three hundred and forty five individual milk samples were tested by real time qPCR assays and by cultivation. Hundred and eleven (32.5%) individual milk samples were positive by the real time qPCR, no milk sample was culture positive. The spread of MAP in individual, tank and bulk tank milk samples was also monitored. (C) 2008 Elsevier B.V. All rights reserved

New publications in the PathogenCombat PARTNERS database (131-134)

Perinatal Undernutrition Modifies Cell Proliferation and Brain-Derived Neurotrophic Factor Levels During Critical Time-Windows for Hypothalamic and Hippocampal Development in the Male Rat
Journal of Neuroendocrinology, 21, 40-48

Maternal perinatal undernutrition (MPU) modifies the activity of the hypothalamic-pituitary-adrenal axis and sensitisises to the development of metabolic and cognitive adult diseases. Because the hypothalamus and hippocampus are involved in the regulation of neuroendocrine activity, energy metabolism and cognition, we hypothesised that a maternal 50% food restriction (FR50) from day 14 of pregnancy (E14) until postnatal day 21 (P21) would affect the development of these structures in male rat offspring. Protein and mRNA levels of brain-derived neurotrophic factor (BDNF) and cell proliferation [analysed by 5-bromodeoxyuridine (BrdU) incorporation] were compared in both control and FR50 rats from E21 to P22. Although the pattern of the evolution of BDNF concentration and cell proliferation throughout development was not strikingly different between groups, several disturbances at specific developmental stages were observed. FR50 rats exhibited a delayed increase of hippocampal BDNF content whereas, in the hypothalamus, BDNF level was augmented from E21 to P14 and associated, at this latter stage, with an increased mRNA expression of TRKB-T2. In both groups, a correlation between BDNF content and the number of BrdU positive cells was noted in the dentate gyrus, whereas opposite variations were observed in CA1, CA2 and CA3 layers, and in the arcuate and ventromedial nuclei. In the hippocampus, P15-FR50 rats showed an increased number of BrdU positive cells in all regions, whereas, at P22, a decrease was observed in the CA2. In the hypothalamus, between E21 and P8, MPU increases the number of BrdU positive cells in all regions analysed and, until P15, marked differences were noticed in the median eminence, the paraventricular nucleus and the arcuate nucleus. Taken together, the results obtained in the present study show that MPU changes the time course of production of BDNF and cell proliferation in specific hippocampal and hypothalamic areas during sensitive developmental windows, suggesting that these early perinatal modifications may have long-lasting consequences

On-farm spread of Mycobacterium avium subsp paratuberculosis in raw milk studied by IS900 and F57 competitive real time quantitative PCR and culture examination
International Journal of Food Microbiology, 128, 250-257

A rapid, cheap and sensitive detection method of Mycobacterium avium subsp. paratuberculosis
(MAP) in raw milk was needed for routine usage. We developed two duplex real time qPCR systems specific for MAP detection. These real time qPCR systems amplify the multicopy element IS900 for qualitative analysis and the single copy element F57 for quantitative analysis. Both assays incorporate an internal amplification control amplified with the same primers as the targets and the same probes are used in both assays. The specificity of the assays was confirmed by the testing of 6 different MAP isolates, 12 isolates of other mycobacteria or bacterial species and 4 different mammalian DNAs. The sensitivity of the developed assays and isolation efficiency were demonstrated through the analysis of raw milk samples artificially contaminated with MAP cells and with plasmids containing cloned fragments of the targets (IS900 and F57). The developed assays for milk analysis were applied to samples from one farm with two faecal shedding cows. Three hundred and forty five individual milk samples were tested by real time qPCR assays and by cultivation. Hundred and eleven (32.5%) individual milk samples were positive by the real time qPCR, no milk sample was culture positive. The spread of MAP in individual, tank and bulk tank milk samples was also monitored. (C) 2008 Elsevier B.V. All rights reserved

Processing practices contributing to Campylobacter contamination in Belgian chicken meat preparations
International Journal of Food Microbiology, 128, 297-303

The aim of this Study was to obtain insight into processing practices in the poultry sector contributing to the variability in Campylobacter contamination in Belgian chicken meat preparations. This was achieved by company profiling of eleven food business Operators, in order to evaluate variation of processing management, in addition to statistical modelling of microbiological testing results for Campylobacter spp. contamination in 656 end product samples. Almost half(48%) of chicken meat preparation samples were positive for Campylobacter spp. Results revealed a statistically significant variation in Campylobacter contamination between 11 chicken meat producers across Belgium at both quantitative and qualitative detection levels. All producers provided Campylobacter-positive samples, but prevalence ranged from 9% up to 85% at single producer level. The presence or addition of skin during production of chicken meat preparations resulted in almost 2.2-fold increase in the probability of a sample being positive for Campylobacter, while chicken meat preparations made from frozen meat, or partly containing pre-frozen meat, had a significant (odds Ratio = 0.41; CI 95% 0.18:0.98) lower probability of being positive for Campylobacter. However, the quantitative results indicated that the positive freezing effect on Campylobacter count was compromised by the presence and/or adding of skin. (C) 2008 Elsevier B.V. All rights reserved

Validation of a Diagnostic PCR Method for Routine Analysis of Salmonella spp. in Animal Feed Samples
Food Analytical Methods, 1, 23-27

As a part of a validation study, a comparative study of a PCR method and the standard culture-based method NMKL-71, for detection of Salmonella, was performed according to the validation protocol from the Nordic validation organ for validation of alternative microbiological methods (NordVal) on 250 artificially or naturally contaminated animal feed samples. The PCR method is based on culture enrichment in buffered peptone water followed by PCR using the DNA polymerase Tth and an internal amplification control. No significant difference was found between the two methods. The relative accuracy, relative sensitivity and relative specificity were found to be 96.0, 97.3, and 98.8%, respectively. PCR inhibition was observed for rape seed samples. For the acidified feed samples, more Salmonella-positive samples were found with the PCR method compared to the NMKL method. This study focuses on the growing demand for validated diagnostic PCR methods for routine analysis of animal feed and food samples to assure safety in the food production chain.