

**PCR FOR THE IDENTIFICATION OF METHICILLIN
RESISTANT *STAPHYLOCOCCUS AUREUS* (MRSA) STRAINS
USING PRIMERS SPECIFIC FOR SCC MEC ELEMENTS**

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Summary

Genetic basis of methicillin resistance are found in the staphylococcal cassette chromosome *mec* (*SCCmec*), which represents an island of resistance to antibiotics, one of the largest mobile genetic elements and have about 60kpb. It is composed of: the *mec* genes (*mecA*, *mecR1* and *mecI*).

Research has been carried out with *in vitro* rapid identification kit of MRSA strains isolated on selective media. Multiplex PCR method used enables the simultaneous amplification of *mecA* gene conferring resistance to methicillin and *nuc* Ater mononucleic acid gene, characteristic species *Staphylococcus aureus*. Were analyzed a total of 50 strains of *Staphylococcus aureus* MRSA, determined by the classical bacteriological methods, of which a total of 45 strains have been validated by PCR.

Compared with conventional methods, analyses performed by molecular techniques have a higher accuracy, the results are obtained more faster. The most important quality of rapid testing methods is that it can be successfully applied in situations where microbiological methods are limited and identify the pathogen essential.

Key words: Methicillin-resistant *Staphylococcus aureus*, MRSA, PCR, *SCCmec*

SOME ASPECTS REGARDING ISOLATION AND IDENTIFICATION OF BACTERIAL PATHOGEN TO WILD BOAR

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Summary

Venison meat, prepared for human consumption, must come from healthy animals because some diseases can be transmitted to humans and / or domestic animals. There are few bibliographic sources that relate to this pathogenic bacterial species existing in the tonsils of wild boars. We have investigated bacteriological boar tonsils 28 with the aim to identify themselves potentially pathogenic bacterial strains portage. Research results have shown the presence of Gram positive and Gram negative bacteria. Incidence was been 46,42% *Erysipelothrix rhusiopathiae*; 10,7% *Streptococcus pneumoniae*, 39,28% *Streptococcus suis*; 50% *Staphylococcus aureus*, 21,4% *Arcanobacterium pyogenes*, 71,4% *Dermatophilus like*, 7,1%, *Haemophilus suis*, 10,7% *Bordetella bronchiseptica*, 3,5 %, *Pasteurella multocida* and 3,5% *Yersinia enterocolitica*.

The results provide useful indications of the health status of wild boar and highlight the potential of the wild boar populations to act as biological reservoirs of certain microorganisms that can be passed onto other vertebrate wild animals and humans.

Key words: Wild boars, bacterial species

STUDIES REGARDING ANTIBODIES PREVALENCE TO SELECTED VIRAL PATHOGENS FROM WILD BOARS

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Summary

Classical swine fever and respiratory and reproductive syndrome are major implications infectious diseases in swine. Hepatitis E is considered an emerging human viral disease in industrialized countries. Zoonotic transmission of hepatitis E virus (HEV) from captured wild boars to humans has been suggested.

Considering importance of these viruses, we proposed detection Ab anti CSVF (*anti-classical swine fever virus*), Ab anti-PRRS (*anti-virus respiratory and reproductive syndrome*) and Ab.anti HEV (*anti-hepatitis E*) by ELISA. The results obtained in the present study indicate that wild boars are infected with these viruses in different proportion. Therefore, of the 79 blood samples from wild boars, 21 (26.5%) were positive for PRRS, 11.39% positive for HEV. Also, the 454 serum samples tested for the detection of swine fever virus, 22 (4.8%) samples were positive.

Key words: Wild boars, Ab. anti PRRS, Ab anti-CSVF, Ab anti-HEV

PHENOTYPIC CHARACTERIZATION OF STAPHYLOCOCCI ISOLATED FROM SMALL RUMINANTS

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Summary

Staphylococcal infections are common in small ruminants and are represented by localized infections of the skin, hooves and mammary gland.

The pathological samples for bacteriological examination were taken from a total of 37 sheeps and goats with different lesions and the primary inseminations were made on agar with 5% sheep defibrinated blood. Biochemical properties were revealed by API Staph system. The isolates were tested against novobiocin and methicillin using the Kirby-Bauer method with biodiscs.

37 strains of staphylococci were isolated and included in *S. aureus* subsp. *aureus* species (32 strains) and in *S. xylosus* species (5 strains).

16 methicillin-resistant strains were identified that belong to those two staphylococci species, confirming thus the epidemiological circuit of these strains also in small ruminants.

Key words: *S. aureus* subsp. *aureus*, *S. xylosus*, small ruminants.

STAPHYLOCOCCI RESISTANT PHENOTYPES OF THE INTERMEDIUS GROUP ISOLATED FROM DOGS

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Summary

Dogs have frequently infections with coagulase-positive and coagulase-negative staphylococci with different locations.

A total of 49 samples consisting of pathological skin, auricular and genital secretions were bacteriologically examined using standard methodology.

The isolates were tested by disk diffusion Kirby-Bauer method, on which was used biodiscs with 19 antibiotics from different groups.

The staphylococci strains isolated from dogs included in Intermedius Group were susceptible to the antibiotics rarely or not used in the therapy of diseases in this species.

The isolates were methicillin-resistant strains, thus emphasizing the movement of these strains in the canine population, confirming the zoonotic risk of these strains.

After this study several resistant phenotypes of staphylococci strains included in Intermedius Group were identified, whose frequency was variable.

Key words: antibiotic resistance, *Grup Intermedius*, methicillin-resistant

SIGNIFICANCE OF FRACTURE IN THE EPIDEMIOLOGICAL TRANSMISSION CHAIN OF *SALMONELLA*

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Summary

Infection with *Salmonella spp.* in pigs farms is usually endemic and mostly asymptomatic. This study reveals the carrier status on the process flow in a closed circuit farm, through: faecal samples from pregnant sows, sows and their piglets, piglets at weaning; youth and pigs for fattening, before slaughter. We have compared the results depending on the mode and time of decontamination. Identification and isolation of *Salmonella* was performed by the method: EN ISO 6579:2002.

Prevalence of *Salmonella spp.* after examination (n = 110) of stool samples was 44% in sows and their piglets, observing a slight growth in piglets after weaning (55%) and fattening pigs (66%). After the proper decontamination, prevalence decrease to 16% in sows and piglets and at the piglets after weaning and fattening pigs was of 33%, and 20%.

Key words: *Salmonella*, disinfection, carrier state.

THE INFLUENCE OF REFRIGERATION ON THE BACTERIAL LOAD OF PORK CARCASSES

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Summary

In this paper is presented the result obtained by underlining the importance of the refrigeration role on the microbial load of pig carcasses.

Sanitation samples were collected from the surface of 80 pig carcasses: before refrigeration, after the fast refrigeration (-25° C) and at 24 hours post-mortem.

The samples were examined for the total aerobic mesophilic bacteria (*NTGMA*) and for *Enterobacteriaceae*. The samples were analyzed in accordance with ISO 4833/2003 and ISO 21528-2/2007.

Before the refrigeration stage the *NTGMA* ranged between 4 and 5 log cfu/cm² and the values for the *Enterobacteriaceae* ranged from 2-3 log cfu/cm², after the fast refrigeration it was noticed a slight decrease in both *NTGMA* and *Enterobacteriaceae*, and finally (24 hours post-mortem) the decrease was higher (1-2 log cfu/cm² respectively 0-1 log cfu/cm²).

Key words: carcasses, microorganisms, refrigeration, total germs count, *Enterobacteriaceae*

CYTOKINES AND PATTERN-RECOGNITION RECEPTORS OF PREGNANT AND PUERPERAL UTERUS IN COW

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Summary

Innate immune response to bacteria infection of uterus in cow depends on phagocytosis and killing of microorganisms by neutrophils, monocytes and macrophages. Bacteria are recognized by specific pathogen-associated molecular patterns expressed by „sentinel cells” (macrophages, dendritic cells and mast cells). Most pathogen-associated molecular patterns (PAMPs) are evolutionary conserved molecules like cell wall components and nucleic acids that are required for the function of microbes. The main families of pattern recognition receptors (PRRs), are Toll-like receptors (TLRs), nucleotide oligomerization domain (NOD)-like receptors (NLRs), retinoic acid-inducible gene I (RIG-I)-like receptors (RLRs) and C-type lectin receptors (CLRs).

Following pathogen recognition, immune cells release pro-inflammatory molecules represented by cytokines such as tumour necrosis factor- α (TNF α), interleukins (IL-1, IL-6, IL-8, IL-12, IL-18) and nitric oxide. Cytokines acting as messengers between the local site of injury and the hepatocytes synthesising the acute phase proteins. For example, high levels of IL6 were associated with bovine endometritis, while low levels were associated with retention of the placenta. In addition IL-8 plays a central role for granulocyte trafficking, particularly for attracting neutrophils into the bovine uterus.

Key words: cytokines, pathogen-associated molecular patterns, uterus, cow.

RESEARCH REGARDING THE IMMUNE RESPONSE MODULATION IN BROILERS

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Summary

Immunomodulators/immunostimulators products influence the immunological reactivity of an organism due the stimulation of specific and non-specific humoral and cellular defense factors by mechanisms aimed to maintaining immune balance, defending the body against pathogens action

In the research carried out, we assessed the immunogenicity of a vaccine against infectious bursal disease in combination with selenium-based product (Seleretard) and vitamin C, effect determined on the basis of hematological changes, concentration of serum properdin lysozyme, as well as antibody titer assessed by indirect ELISA. Analyzing the test results, we found an increase in the synthesis of immune effectors, both specific and non-specific, in all broilers that were treated with Seleretard and vitamin C.

Key words: broilers, immune response, immunomodulation

TRICHINELLA INFECTIONS IN ROMANIA: MINIREVIEW OF THE PAST 15 YEARS

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Summary

The current paper review the occurrence of *Trichinella* infections in livestock, wildlife and humans in Romania in the last 15 years, processing relevant publications retrieved from the PubMed database. In foreground, (i) epidemiology of the *Trichinella* genus, (ii) clinical spectrum of the infection, and (iii) future perspectives are approached. This update should be useful to veterinarians, parasitologists, public health and food safety specialists, and for the public in general (pig breeders, hunters, consumers), for to estimate the risk of infection and to define adapted recommendations for the disease prevention.

Key words: *Trichinella*, animals, humans, Romania

**THE ATTACHMENT, AS A COMPONENT OF THE SOCIAL
BEHAVIOUR OF DOGS**

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Summary

This paper is meant to assess the social behaviour in shelter dogs, meaning the attachment, a feature commonly found in the dogs that have had previous human animal relationships/interactions.

Out of 100 dogs, housed in the shelter, 30 were submitted to the study, out of which 25 have manifested different forms and patterns of attachment toward the assessor/ evaluator.

Key words: dog, shelter, attachment.

MANURE IMPACT ON SURFACE WATERS

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Summary

The objective of this study was to establish the impact of the organic matter released until present by animals on streams for localities Birda and Gataia which have as same stream river Barzava.

In the first stage an inventory of the animal number in the two localities from Timis County was performed. We chose the localities based on the previous and present zootechnical activities, with special reference to the classification done after the implementation of the **Nitrate Directive**. To achieve the set goals, after the identification of the spot (geographical position) of entrance of the stream in the territory of the localities studied, as well as of the spot of exit from the territory, **54 water samples** were collected in accordance with SR ISO 5667-2 from 1998, samples harvested during March - October 2009.

Assessing the values obtained after the analysis of water samples we concluded that river Barzava water presented different values, dependent on the sampling period and correlated with the river flow, flow also influenced by rainfall.

Regarding the samples harvested on river **Barzava**, we noted different values, dependent on the sampling period and rainfall level, so that, of the total number of harvested samples, approximately 80% allowed the ranking of the stream in the first category of quality from the chemical indicators point of view.

Key words: pollution, surface waters, manures impact.

OVERVIEW OF FOODBORNE PATHOGENS IN MEAT AND MEAT PRODUCTS: TREND IN EU

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Summary

Over the last years a variable evolution of the reported cases of food-borne outbreaks has been noticed. Beginning from 2009 meat and meat products represent over 15% of all food vehicles of food-borne outbreaks reported in European Union. *Campylobacter* was the most common agent involved in food-borne outbreaks transmitted by meat and meat products in EU, throughout 2009-2012. Poultry meat and products thereof represent the major sources of *Campylobacter*. In red meat *Salmonella* was isolated in low percentage, less than 1% starting with 2008. In broiler meat, the highest incidence of *Salmonella* was in 2006 (6.3% positive samples). In 2012 the lowest occurrence of *Salmonella* in broiler meat (from 2004 to 2012) was registered (4.1%). For *Salmonella* outbreaks meat and meat products represent the food vehicle in 15-20% of cases, for the same period. *L. monocytogenes* was isolated most commonly in RTE bovine meat products in 2011 (8.9% positive samples). In poultry meat products proportion of *Listeria* positive samples was low, recording a decreasing trend beginning to 2010. VTEC positive fresh bovine meat presented similar values in 2011 and 2012. From 2006 to 2009 a tendency of reducing in the incidence of *Y. enterocolitica* in pork samples was observed. In 2011 the proportion of positive samples reported for pork was reduced with 40% compared to 2010 (2.4%). Other agents involved in triggering outbreaks through meat and meat products consumption, including *Clostridium* toxins, *Staphylococcal* enterotoxins, and *Bacillus* toxins, with a major impact on public health, have been published.

Key words: meat safety, foodborne pathogens

ANALYSIS OF CHEMICAL RISK FACTORS SURROUNDING SWINE FARMS IN TIMIS COUNTY

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Summary

Soil pollution by livestock waste is due to the management of animal waste resulting from farming activities, both in terms of collection and storage, and from the point of view of quantity and type used to fertilize farmland. Sampling location was established depending on swine farms neighbouring regions to determine the possible pollution. Test samples used were from soils taken from five locations: Pădureni, Parța, Voiteni, Peciu Nou and Ciacova. Samples were taken from a depth of 10 to 20 cm, in two places, at: I = 100-300 m and II = 500-1000 m away from swine farms for samples from localities Parța, Voiteni, Ciacova, Pădureni, and for Peciu Nou it was also additionally collected a sample from a distance of over 1000 m from the swine farm present in the area. The samples gathered were compared with soil samples taken from a zone without risk of pollution from swine manure. The analysis of nitrate presence was accomplished using disulphonic acid and ammonium hydroxide added after the evaporation to dryness of supernatant obtained from soil sample. In order to detect phosphate it was used a test with ammonium molybdate and hydroquinone, a colour proportional with phosphate concentration resulting. Chlorides presence was identified by using HI3815 kit (Hanna Instruments). The chemical analysis revealed the highest and lowest amount of nitrate, phosphate and chlorides in soils surrounding swine farms in our region. The highest amount of nitrate was in soil samples from Parța at a distance of 500-1000 m from the swine farm. The maximum level of phosphate was obtained from Voiteni farm at a distance of 500-1000 m. The highest chlorides levels were from a distance of about 1000 m of the swine farm in Peciu Nou.

Key words: nitrate, phosphate, chlorides, soils, samples

INVESTIGATION OF THE PATHOGENIC FUNGI IN A RABBIT SHELTER

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Summary

The presence of pathogenic fungi in the environment of animals shelters play an important role for the health and welfare of both human and animals.

The aim of this work was to evaluate the number and type of pathogenic fungi that are present in a rabbit shelter with natural ventilation, starting from the numerous cases of dermatomycosis reported in humans. Were evaluated not only the typical environmental fungi but also the dermathophytes (Microsporum and Trichophyton). Data were collected during summer and autumn (July – November). Was used Sabouraud Agar and Dermasel Agar (Oxoid).

Aspergillus, Penicillium, Alternaria and Cladosporium were the most frequently isolated species Among the isolated dermathophytes species, more frequently dermathophytes were Microsporum canis, Microsporum gypseum and Trichophyton mentagrophytes. From the persons that work in the shelter a percent of 30 was affected by dermatomycosis

The results underline the importance of controlling the microorganism load of animal's environment, especially of those species that are particularly sensitive to pathogenic microorganism

Key words: pathogenic fungi, rabbit, dermatomycosis

CLOSTRIDIUM DIFFICILE A THREAT EMERGING IN ZOOANTROPONOTIC PATHOLOGY

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Summary

Clostridium difficile (*Cl.difficile*) is a Gram-positive sporogenous strictly anaerobic, which in the last decade become the most important anaerobic bacteria in nosocomial human pathology. *Cl.difficile* is the etiological agent of more than 20% of diarrhea postantibiotics, over 95% of pseudo-membranous colitis and the first cause of nosocomial infectious diarrhea in adults. Although this bacteria usually colonize the intestine of vertebrates (the normal microbiota), toxinogenic strains (*tcdA* and *tcdB*) are pathogenic in the digestive tract. Carriage of *Cl.difficile* is commonly in farm animals or pets. There has not been an established definite link with diarrheal disease in animals, but excess used of antibiotics (treatment or pre-mixes) it is probable. Also, given the increased of spores resistance to environment, zooantroponotic contamination it is possible, with strains which may already be resistant to antibiotics. The main causes of this infection are decreased resistance to antibiotic-induced colonization, contamination with a pathogenic strain of *Cl.difficile*, secretion of A and/or B toxins and deficient immune response. Microbiological diagnosis is made by several methods and techniques for bacteria or toxins identification. It is important to continue this research on the microbiology and epidemiology of *Cl.difficile* to optimize prevention and therapy of diseases associated with this bacterium *en vogue*.

Key words: antibiotics, *Clostridium difficile*, epidemiology, nosocomial infection, toxins

**BIOCHEMICAL PARTICULARITIES OF GOAT AND EWE MILK
PRODUCED IN MOUNTAIN AREAS FROM TRANSYLVANIA**

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Summary

In this study we assessed the biochemical particularities of goat and ewe milks' composition and fatty acids profile with emphasis on the particularities found according to the area of production. All the samples (N=120) were gathered during the spring season from farms located in mountain areas of North Transylvania. Also, a number of samples (N=40) were collected from other geographical areas for comparison. The mean data of the analyzed parameters (fat, protein, lactose, fatty acid profiles) were compared using the ANOVA test. Our results showed that there are no significant differences in the amount of lactose and protein percent when compared to milk produced in other geographical areas but the fat and fatty acids contents are strongly influenced. When comparing the three feeding systems based on natural pasture in the plain, on hills and on mountains for goats and ewe milk, we noticed that on mountain pasture the fat and protein contents as well as PUFA percentages are statistically different ($p < 0.05$). We concluded that ewe and goat milk produced in the mountain areas of Transylvania is healthier, containing a higher amount of PUFA and proteins, essential in human diet. Also the cheese quality production can be influenced by processing primarily the milk produced in these mountain areas.

Key words: milk, fatty acids, goat, ewe, mountain.

ASSESSING THE HUMAN-ANIMAL RELATIONSHIP IN DAIRY COWS KEPT IN DIFFERENT HOUSING SYSTEMS

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Summary

The human-animal relationship (HAR) represents an important feature of adequate cattle breeding, both for improving the animals' welfare and to facilitate the farm activities. The aim of this study was the comparative assessment of the HAR's quality in dairy farms with tie stalls and loose housing, by investigating the behavioural response of the animals towards people. The study was accomplished in five dairy farms (three with tie stalls and two with loose housing); 424 cows were assessed using specific tests. The main methods employed were observation, chronometry and measuring/approximating spatial distances. The obtained data were statistically processed with the SPSS software (descriptive indicators, Mann-Whitney test). Following the comparative evaluation of the human-animal relationship by avoidance tests (avoidance of the human in the passageway/open field, avoidance of the human at the feed-face, avoidance of the human while laying and avoidance of the human while tethered) applied to the cows in different housing systems it was observed a clear tendency of the tethered cows to be more docile, less fearful, more trustful towards people and calmer than the loose housed cows. The result of the study indicates the need of improving the HAR in dairy farms, keeping in mind its multiple beneficial effects upon the welfare, production and behaviour of the cows and also on the work efficiency and safety in farms, all these being realizable with minimal investments.

Key words: human-animal relationship (HAR), dairy cow, avoidance distance test

BACTERIAL CONTAMINATION OF DRINKING WATER IN SELECTED DAIRY FARMS FROM TRANSYLVANIA

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Summary

The aim of this study was to investigate the contamination of drinking water in selected dairy farms from Transylvania. A total number of 60 water samples (a sample from the source and one from the drinker) were collected and analyzed from 30 dairy farms. All water samples were examined for total bacterial count, numbers of total and faecal coliforms. The results were compared with the legal provisions for drinking water quality and statistically processed. In the water from the source the total bacterial count ranged from 0 to 1.38×10^3 CFU/mL, and the numbers of total and faecal coliforms from 0 to 1.28×10^3 CFU/100 mL, and from 0 to 9.18×10^2 CFU/100 mL, respectively. In the water from animals' drinkers the total bacterial count ranged from 5 to 3.25×10^4 CFU/mL, and the numbers of total and faecal coliforms from 0 to 2.61×10^3 CFU/100 mL, and from 0 to 1.98×10^3 CFU/100 mL, respectively. There were significant differences ($P < 0.05$) between the samples from the water source and that from the drinkers for all the microbiological parameters assessed. The type of the drinker influenced significantly the level of water contamination. The results of the study indicate that the water consumed by cattle in the majority of the investigated farms is heavily contaminated with bacteria, especially because the watering hygiene is not respected.

Key words: total bacterial count, total coliform, faecal coliform, drinking water, dairy farm

DEVELOPMENT OF AN ANTIGEN FOR *SALMONELLA ENTERITIDIS* DIAGNOSIS IN INFECTED STOCKS

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Summary

Some antigens, like bacteria, combine with their specific antibodies to form complexes that usually aggregate as visible clumps. The procedure is used to demonstrate both serum antibodies presence and identification antigens on bacterial cell surfaces.

The purpose of this study was preparation and testing of a stained inactivated *Salmonella enterica* antigen, serovar *Enteritidis* (SE), in order to detect the agglutinant antibodies. The SE antigen titration has been carried out by rapid slide agglutination test (SAR) using two positive control sera – PC (*Salmonella* against – O group D, factor 9 NIRDMI Cantacuzino Bucharest and SE policlonal antiserum *in house* prepared) and negative control sera – NC (White Leghorn SPF chicken serum). Has been tested SE antiserum cross-agglutination with related antigens (*Salmonella Pullorum*, *Salmonella Typhimurium*). The suitable SE antigen concentration was established by SAR compared with positive and negative controls. To perform the test have been used equal volumes (30μl) of diluted positive and negative control sera with diluted SE antigen. Reading of reactions was carried out within 2 minutes interval since the antigen and specific antibodies contact. Presence of agglutination indicates a positive reaction expressed by appearance of the violet agglomerations in a transparent liquid.

The SE Antigen has produced a 100% specific agglutination with positive control, it missing in case of negative control. A cross-reactivity has been observed between SE polyclonal antiserum and related antigens.

SE Antigen should be used to perform rapid slide agglutination tests in order to establish an early and fast diagnosis of SE infected stocks. The rapid slide agglutination test is a simple, fast, early, cheap and specific method for detection of SE presence in the poultry and mammals stocks.

Key words: *Salmonella Enteritidis* antigen, antibody, agglutination, rapid slide agglutination

RESEARCH REGARDING STIMULATION OF IMMUNOLOGICAL REACTIVITY IN PIGS

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Summary

Both human and animal health is one of the most important challenges in EU countries. In this context, the main goal of our research is to test alternative solutions to stimulate specific and nonspecific immunity in farm animals, given the increasing number of restriction in use of antibiotics as growth promoters, antibiotics that have led to the emergence of multiple resistant strains of bacteria.

For this purpose, our research assessed the immunogen effect of the Pneumosuivac B vaccine (a mixture of *Actinobacillus pleuropneumoniae* serotypes 9, 2 and 5, and *Pasteurella multocida* strains 511 and 616), in combination with NutriBAC (a probiotic based on lactic bacteria, yeast, organic acids, cellulose butyrate, essential vitamins and trace elements), on the immunological reactivity four weeks old piglets. In animals studied, the immunomodulatory effect of probiotic was assessed by hematological changes, the levels of lysozyme and serum properdin and antibody titer determined by indirect ELISA.

Key words: pigs, probiotics, immunomodulation

RAW MILK QUALITY COLLECTED IN WEST PART OF ROMANIA

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Summary

Raw milk quality obtained from small and medium farm in Romania was inconstant during last years. Despite different measures have been applied for improving milk quality the results were inconstant and non satisfactory. If we taking into consideration that beginning to the January 2014 Romania could not process milk which do not accomplish the standard and that the quality and that shelf life stability of heat treated market milk is dependent on quality of raw milk, the importance to accomplish the standard recommendations is more important. In order to evaluated the efficiency of applied measures and to offer real information for the authorities, raw milk samples collected from farm in Timis County have been analyzed by SPC (standard plate count) and SCC (somatic cell count). The SPC was determined by plating on a standardized plate count agar followed by aerobic incubation for 3 days at 30°C and SCC were determined by using Nucleocounter SCC100. Regarding general level of milk contamination, out of 122 samples analyzed, 77.8% were noncompliant with standard (SPC 100 000 FCU ml). Even more, 52% of these have had SPC higher than 500 000 FCU/mL. Quality of raw milk regarding SPC is an indicator for monitoring the sanitary conditions present during the production, collection, and handling of raw milk in farm. 52% out of 122 samples analyzed were noncompliant with SCC standard (SCC 400000 cell/mL). In plus 41% of samples have had a milk SCC >600000 cell/mL. This study highlights the importance of identifying realistic measures for improving of raw milk quality by improving farm hygienic conditions during milk production and that management of udder health is necessary. To achieve standard value of raw milk processors, dairy farmers and authorities need to work together and to structure real economic measures for improving milk quality.

Key words: raw milk, quality, Somatic cell count

MIXED CHIMERISM IN XENOGENEIC COMBINATION

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Summary

The purpose of this study was the assessment of two methods for inducing immunotolerance in concordant combination (duck-poultry), inoculation onto allantoic membrane and into vitelline sack. Biological material was represented by six donor ducks and six experimental groups of COBB 500 embryos (n = 180), matched by an equal number of control groups. Inoculation of antigenic material (blood mononuclear cells and bone marrow mononuclear cells) in the purpose of immunotolerance induction was performed in fifth day of incubation.

At the age of three weeks, the resulting poultry (recipients) were tested for donor-recipient compatibility using mixed lymphocytic reaction and the lymphocyte profile (naive, effector and memory T cells) was also characterized.

Inoculation on to allantoic membrane of the two types of mononuclear cells (from blood and bone marrow) did not allow obtaining the status of hematopoietic chimera. In contrast to this method, inoculation into vitelline sac resulted in hematopoietic chimera status for the majority of the experimental poultry and switching of the lymphocyte profile to effector and memory subsets.

Key words: immunotolerance, xenotransplant, hematopoietic chimera

NATURAL IMMUNOTOLERANCE

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Summary

Immunological tolerance is one of the fundamental properties of the immune system, which facilitates discrimination between self and non-self antigens, allowing the body to maintain balance of internal components, by recognizing them as their own, and at the same time, to fight against aggressions of external pathogens (foreign antigens). This state of tolerance is an ongoing process that installs from the early stages of immune system ontogenesis and lasts the entire life of the individual. This article aims to describe the major features of the immunotolerance state, focusing on specific mechanisms that determine effector cells tolerance at central level (in primary lymphoid organs - central tolerance) and peripheral level (in secondary lymphoid organs - peripheral tolerance).

Key words: natural immunotolerance, central tolerance, peripheral tolerance, self-antigens

EFFECTS OF DIFFERENT BEDDING MATERIAL ON DAIRY COW WELFARE

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Summary

The aim of this study was to assess the welfare of dairy cows raised on straw or sawdust bedding materials from selected dairy farms in South-Western Sweden. A questionnaire for dairy cows welfare assessment was set up using the Welfare Quality® protocol. A total of 20 farms were assessed, and the animal-based measures were evaluated on 35 cows in each farm. Data were statistically processed, and differences between the two types of bedding materials were tested using chi-squared test (χ^2) or Mann-Whitney U test. At individual level, cows had cleaner flanks/upper hind legs/tails ($p < 0.01$) and udders ($p < 0.001$) in farms where straw was used as bedding material compared to those where sawdust was used. At farm level, the percentage of cows showing hairless areas on tarsus was higher in farms employing sawdust as bedding material ($p < 0.05$). The bedding material had no influence on the overall qualitative behaviour assessment score (19.26 in straw bedding vs. 18.87 in sawdust bedding, $p > 0.05$), although cows housed on straw were more relaxed, calmer, more indifferent and more bored and apathetic compared to cows housed on sawdust that were more agitated, frustrated, playful and lively. At the welfare criteria or principle level there were no significant differences between the types of bedding material was used. The dairy cow welfare was classified as enhanced or acceptable in all visited farms, with 70% of farms where straw was used classified as acceptable and 71% of the farms where sawdust was used classified as enhanced ($p < 0.05$).

Key words: dairy cows, welfare, Welfare Quality protocol, straw, sawdust

EFFECT OF IMMUNIZATION AGAINST INFECTIOUS BURSAL DISEASE ON SPECIFIC HUMORAL IMMUNE RESPONSE AND BURSA OF FABRICIUS

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Summary

Infectious bursal disease (IBD) is one of the poultry diseases associated with significant economic losses, and the only way to fight against this disease is specific prophylaxis. Given the fact that most vaccines against IBD, more or less attenuated, are associated with different degrees of immunosuppression and post-vaccination antibody titers, this study aims to characterize the effects of three vaccines currently used in the prophylaxis of IBD - two produced in our country (based on attenuated strains of the IBD virus), and one imported, which contain an intermediate strain of the IBD virus. The assessment aimed to determine the titers of post-vaccination antibodies and the score of the lesions induced by vaccine strains in bursa of Fabricius. Our study demonstrate that administration of the two attenuate vaccines are associated with moderate bursal lesions and good post-vaccination antibody levels, but intermediate vaccine causes irreversible bursal atrophy, even if its immunogenic effect is superior.

Key words: infectious bursal disease, vaccination, attenuated and intermediate vaccines, bursa of Fabricius lesions

A REVIEW OF THE MOST IMPORTANT IMMUNOMODULATORS USED TO ALLEVIATE INFECTIOUS BURSAL DISEASE VIRUS EFFECTS

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Summary

Infectious bursal disease (IBD) is a disease with significant impact on poultry production. Economic losses associated with this disease are caused by mortality and morbidity, especially by post-infection immunosuppression. Because the infection and also the immunoprophylactic measures in infectious bursal disease are associated with varying degrees of immunosuppression, a series of studies are dedicated to the attenuation of this negative effect. The majority of measures applied to attenuate infectious bursal disease virus (IBDV) effects concern the administration of the immunomodulator products. This paper represents a review of the most important microbial, animal, vegetal, mineral etc. immunomodulators used for rehabilitation of cellular and humoral defense mechanisms of the birds infected with IBDV or vaccinated against IBDV.

Key words: immunomodulators, infectious bursal disease (IBD), infectious bursal disease virus (IBDV), vaccination, chickens

HYGIENIC QUALITY OF MILK, A GREAT AND PERPETUAL DESIDERATUM

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Summary

One of the most debated issues over the time, both in food industry and veterinary medicine, was the quality control of milk. Some European nations have managed to create hundreds of varieties of cheeses, very well appreciated for their qualities and very well sold all over the world. These is not only the result of creative ingenuity of their people, but especially the result of the fact that they always are prepared with a raw milk of the highest hygienic quality(1). From the chemical point of view, was easier to put the quality control of milk into some limits, because was possible to appeal to the specific methods of biochemistry, but from the sanitary point of view, things appear to be more complicated. It is well known that both clinical- and subclinical mastitis cause very important economic damage, but especially the hindmost are important because they are much more numerous then clinical ones and, being clinical unapparent, they are often neglected or even completely ignored. A milk of best quality, good for consumption, is a wholesome milk (WM), obtained hygienically only from perfectly healthy mammary quarters (MQ). Such milk has the following characteristics, organoleptic noticeable: white color or slightly yellowish-white, perfectly homogeneity, with appetizing taste and specific pleasant flavor (not smell!); microscopically may present a small number of somatic cells (SCC) and bacteria. To assess the hygienic quality of milk, in addition to biochemical tests, wich became classics and well known, lately are emerging new tests, especially of those wich detect the physical changes in milk, with electronic devices.

Key words: hygienic quality of milk, mastitis, portable milk tester, SCC.

**RESEARCH REGARDING THE INHALABLE DUST, BACTERIA
AND FUNGI IN A POULTRY FARM OF TIMIS COUNTY**

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Summary

This paper summarizes some quantitative data from a recent study on occurrence of dust, mezophilic bacteria and fungi load from a laying hens farm from Timis county. The average value of total bacteria count was 7.3×10^5 , that means a high load of bacteria in the laying hens house. The fungi load from inside the laying hens house was 4.7×10^4 ufc/ m³, with a minimum value of 2.3×10^4 and a maximum one of 7.7×10^4 . Inhalable dust concentrations from the laying hens house had an average value of 3.2 ± 1.97 (mg/m³) with maximum values in the first three-fourth mounts. The monitories indicators such as dust, total bacteria count and fungi, presented high and partly very high concentrations in the air of poultry houses. In winter months the concentration of the air pollutants are distinctly higher than in summer when high ventilations rates are applied.

Key words: dust, mezophilic bacteria, fungi, poultry house