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RESEARCH PAPERS

43  RUMEN FERMENTATION PATTERN IN GRADED MURRAH BUFFALO BULLS FED ON LEVUCELL SC 20 YEAST (SACCHAROMYCES CEREVISIAE CNCM I-1077) CULTURE

   D. Srinivas Kumar, J. Rama Prasad, E. Raghava Rao, K. Sarjan Rao

50  IDENTIFICATION AND CHARACTERIZATION OF ESCHERICHIA COLI ISOLATED FROM CEREBROSPINAL FLUID OF BOVINES WITH ENCEPHALOMYELOPATHY


54  EFFECT OF MILQX- A COMMERCIAL RUMEN SPECIFIC PROBIOTIC ON MILK YIELD AND MILK COMPOSITION IN HOLSTEIN FRIESIAN COWS UNDER TROPICAL CONDITION

   D. Srinivas Kumar, E. Raghava Rao, R. Sowjanya, V. Karuna Sri

59  PATHOGENICITY OF SALMONELLA GALLINARUM IN EXPERIMENTALLY INFECTED CHICKS

   Arun Prasad, J.P. Soman, B.K. Tiwary, Subha Ganguly

64  PESTE DES PETITS RUMINANTS (PPR) OUTBREAK IN SHEEP AND GOATS IN MAHARASHTRA: LABORATORY CONFIRMATION BY S-ELISA (MUKTESHWAR) AND VERO CELL CULTURE

   S.R. Bhaskar, V.V. Deshmukh, N.A. Chopade, S.S. Rautmare, A. Aziz

69  SERODETECTION OF BOVINE BRUCELLOSIS BY RBPT AND AB-ELISA

   S.P. Londhe, A.S. Bannalikar, V.D. Dighe

CLINICAL PAPERS

74  CLINICAL MANAGEMENT OF FOETAL DYSTOCIA DUE TO HYDROCEPHALUS IN AN ONGOLE (INDIAN ZEBU) COW

   P.Vidya Sagar, Krishna Veni, B. Supriya

77  RUSSELL’S VIPER ENVENOMATION IN DOG - CLINICAL FEATURES AND THERAPEUTIC PROFILE

   D.A. Pawalkar, M.D. Kulkarni, S.B. Swami, P.K. Muluk, D.R. Belhekar, M.A. Shejal, S.D. Rahane
RUMEN FERMENTATION PATTERN IN GRADED MURRAH BUFFALO BULLS FED ON LEVUCELL SC 20 YEAST (SACCHAROMYCES CEREVISIAE CNCM I-1077) CULTURE*

D. Srinivas Kumar¹, J. Rama Prasad², E. Raghava Rao³, K. Sarjan Rao⁴

ABSTRACT

Improvement in productivity of ruminants through manipulation of rumen microbial ecosystem is a subject of persistent interest to ruminant nutritionists and microbiologists. Probiotics like yeasts have displayed positive impact on the growth and viability of rumen microflora and the fermenting process in the rumen. But, the results have been inconsistent due to confounding effects of the ration composition, and variability in the properties of the yeasts and their administration protocol. This study was undertaken to assess the rumen fermentation pattern in graded Murrah buffalo bulls, fed on a diet, supplemented with Levucell SC 20 yeast (Saccharomyces cerevisiae, CNCM I-1077 strain) culture in a crossover design of experiment for a period of 60 days. Six graded Murrah buffalo bulls of about 3 years of age with an average body weight of 229.85±8.36 kg, each fitted with a permanent rumen cannula, were divided into two groups of three animals each. The animals were maintained on 1.5 kg of concentrate mixture, and Hybrid Napier CO1 fodder ad libitum to meet the nutrient requirements (ICAR, 1998). The experimental group was supplemented with Levucell SC 20 at the rate of 0.5 g /animal/day in peroral route, along with concentrate mixture. The ruminal fluid was collected at 0, 2, 4, and 6 hours post-feeding, after 30 days to assess rumen pH, total volatile fatty acid (TVFA) concentration, ammonia nitrogen, total nitrogen, Trichloroacetic acid insoluble protein nitrogen (TCA-IPN), residual nitrogen, and food and protozoal nitrogen. The yeast supplemented group showed increase (P≥0.05) in all these attributes than the control. It is inferred that supplementation of yeast culture in the diet could improve the digestive efficiency by increasing the concentration of rumen metabolites in ruminants.

KEY WORDS

Buffalo bull, Levucell SC 20, Murrah, Rumen fermentation, Yeast

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IDENTIFICATION AND CHARACTERIZATION OF ESCHERICHIA COLI ISOLATED FROM CEREBROSPINAL FLUID OF BOVINES WITH ENCEPHALOMYELOPATHY

S. Ramesh¹, M.K. Bhowmik², S.K. Mukhopadhayay³, S. Ganguly⁴, S. Jana⁵, D. Niyogi⁶

ABSTRACT

Clinico–pathological examination of the central nervous system of 2500 cattle and 3000 buffaloes, aged 5-11 years, brought for slaughter at Tangra slaughter House, Kolkata, India, revealed encephalomyelopathy in 62 cattle (2.48%) and 85 buffaloes (2.83%). Microbial study of 75 cerebrospinal fluid (CSF) samples collected from these animals, revealed the presence of Escherichia coli in 3 cattle and 6 buffaloes. The organisms were isolated, and identified on the basis of colony morphology, cell morphology, staining characteristic by Gram’s stain, motility, agglutination test, biochemical properties, and sugar fermentation tests. The identified Escherichia coli organisms belonged to five serotypes viz., O25, O115, O172, O101, and Rough. Among these, O25 and Rough belonged to cattle. Rest belonged to buffaloes. Escherichia coli are primarily enteropathogens. Their involvement in central nervous system (CNS) disorder in bovines is a new finding, although it is a common pathogen in paedriatic bacterial meningitis.

KEY WORDS

Bovine, Cerebrospinal fluid, Encephalomyelopathy, Escherichia coli, Serotype

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EFFECT OF MILQX- A COMMERCIAL RUMEN SPECIFIC PROBIOTIC ON MILK YIELD AND MILK COMPOSITION IN HOLSTEIN FRIESIAN COWS UNDER TROPICAL CONDITION

D. Srinivas Kumar¹, E. Raghava Rao², R. Sowjanya³, V. Karuna Sri⁴

ABSTRACT

Probiotics, particularly direct fed microbials (DFM) such as bacteria, yeast, and fungi have been in use to enhance milk production in dairy animals. The results are often debatable, as the critics maintain that the results are unconvincing, and not free from interactions with macro- and micro- environmental conditions, including ration composition, switch over to new ration, and ambient temperature etc. The farmer lacks adequate technical competence to feed DFM to his/her animal. Now-a-days, many commercial DFM feed supplements are available in the market. The tall claims of these products by the manufacturers are not supported with scientific evidence. This paper depicts the results of a lactation trial, undertaken for 8 weeks in sixteen Holstein Friesian cows (550±25 kg body weight) in mid lactation, maintained under tropical climatic condition in south India, to assess the effect of supplementation of MilQx (M/S SRIBS Biotekno International, Mumbai), a rumen-specific probiotic on milk yield and milk composition. The cows were randomly divided into two groups of eight animals each (control and treatment) taking into consideration daily average milk yield, butter fat content, and 4% FCM yield. Animals in both the groups received a basal diet comprising Hybrid Napier, paddy straw, and concentrates, that met the maintenance and production requirements (ICAR, 1998) of the animals. The cows in the treatment group were fed MilQx mixed with concentrate mixture @ 10g/cow/day, as per the manufacturer’s recommendation. The treatment group showed increase (P≥0.05) in average daily milk yield (4.37%), average 4% FCM yield (7.29%), Fat% (0.16%), SNF% (0.15%), and TS% (0.31%), but decrease (P≥0.05) in protein percent (0.04%). It is inferred that addition of MilQx at the manufacturer’s recommended dose of 10g/cow/day, ushered an increase in net income by ₹15.78/cow/day.

KEY WORDS

Holstein-Friesian cow, Milk composition, Milk yield, MilQx, Probiotic
PATHOGENICITY OF SALMONELLA GALLINARUM IN EXPERIMENTALLY INFECTED CHICKS

Arun Prasad1, J.P. Soman2, B.K. Tiwary3, Subha Ganguly4

ABSTRACT

Fowl typhoid, caused by Salmonella Gallinarum is a septicemic contagious bacterial infection in poultry, causing economic losses, due to performance moderation, and mortality in chicks of all ages. The disease is endemic in many parts of the world. The clinical signs and histopathological lesions in Salmonella Gallinarum infection often resemble the infection with its biotype Salmonella Pullorum. There are high intensity outbreaks of fowl typhoid in India, but the pathogenicity, and the clinicopathological features of the disease have been sparsely studied under experimental condition. It is a necessity for the strategic control of the disease. In this study, two weeks old, 30 broiler chicks were experimentally infected by inoculating each bird, a local strain of Salmonella Gallinarum at a concentration of 1x10^7 microorganisms in 0.5 ml normal saline in the wing vein of the chicks. The incubation period of the infected birds was 48 hours. The course of the disease ranged 2-7 days. The chicks started dying 2 days post-infection, and all were dead on 7th day post-infection. The morbidity was 83.33%, and the mortality was 70% in the experimental birds. The infected birds displayed characteristic clinical symptoms and pathological lesions of fowl typhoid. The organisms were isolated from heart blood, liver and gall bladder from almost all dead chicks. The organisms were re-isolated from the intestine of all chicks, and from heart blood in the chicks died within 12 hours. The control flock maintained at a distance in a separate enclosure did not contact the infection. This re-affirmed that the horizontal mode of transmission of fowl typhoid was primarily faecal-oral or through contact with infected pen-mates.

KEYWORDS

Broiler chick, Clinical signs, Experimental infection, Fowl typhoid, Histopathology, Salmonella gallinarum

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PESTE DES PETITS RUMINANTS (PPR) OUTBREAK IN SHEEP AND GOATS IN MAHARASHTRA: LABORATORY CONFIRMATION BY S-ELISA (MUKTESHWAR) AND VERO CELL CULTURE

S.R. Bhaskar¹, V.V. Deshmukh², N.A. Chopade³, S.S. Rautmare⁴, A. Aziz⁵

ABSTRACT

Peste Des Petits Ruminants (PPR) is a highly contagious viral infection of small ruminants. There have been large numbers of outbreaks of the disease in sheep and goats in various states in India. The disease causes economic disaster, due to high casualty both in young and adults. A tentative diagnosis of PPR can be proffered on the basis of clinical signs, but laboratory confirmation is required for differentiation from diseases like rinderpest with analogous symptoms. This paper discusses the use of s-ELISA (PPR s-ELISA kit developed by IVRI, Mukteshwar) and culture of the virus on Vero cell lines for laboratory confirmation in a PPR outbreak in sheep and goats in Maharashtra, India during September to December 2007. The investigation was carried out on 256 specimens, comprising clinical samples (blood, nasal swabs, and anal swabs) and morbid specimens (spleen, lung, mesenteric lymph node, and intestine) of the animals collected during the outbreak. The presence of PPR antigen was positive in 69.39% of the samples in goats and 66.66% in sheep. The difference between the two species was non-significant (P≥0.05) indicating that both the species were evenly at risk to PPR. The diagnostic value of mesenteric lymph node was the highest (100%), followed by spleen (85.71%), and blood (82.97%). PPR viruses, isolated from spleen samples from three independent sources, and inoculated in Vero cell lines were designated as I-1, I-2, and I-3 as per the source of virus. This study implied that sero-monitoring of the PPR antibodies would be helpful in effective formulation of PPR control strategies in the state.

KEY WORDS

Goat, Sheep, S-ELISA, Peste Des Petits Ruminants, Vero cell

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SERODETECTION OF BOVINE BRUCELLOSIS BY RBPT AND AB-ELISA

S.P. Londhe¹, A.S. Bannalikar², V.D. Dighe³

ABSTRACT

Bovine brucellosis is a zoonotic disease of serious economic consequences to the dairy industry, because of spontaneous abortion and infertility in cattle and buffaloes. Diagnosis is often tardy and difficult, as the clinical manifestations are asymptomatic and insignificant. Conventionally, serological tests are used to screen or confirm the disease, as they are inexpensive, rapid and sensitive. But, there is wide variation in the sensitivity, specificity, and diagnostic values of these tests. RBPT and ELISA are the commonly employed serological tests for the diagnosis of the disease. This paper describes the relative efficacies of RBPT (rose bengal plate test) and AB-ELISA (avidin-biotin enzyme linked immunosorbent assay) in detection of bovine brucellosis. The investigation based on 99 serum samples, comprising 35 cattle and 64 buffaloes with history of abortion and repeat breeding, belonging to five dairy intensive districts in Maharashtra, revealed that the incidence of brucellosis in bovines was 40.4% ranging between 26.31% and 70% in different districts. Buffaloes had higher (P≥0.05) incidence of the disease (42.18%) than cattle (37.14%). AB-ELISA was superior to RBPT in detection of Brucella antibodies. Considering AB-ELISA as the gold standard, the sensitivity of RBPT was 45.45%, while its specificity was 44.44%. The overall agreement between RBPT and ELISA was 45 percent. This study suggested that AB-ELISA would be a suitable adjunct to RBPT in detection of bovine brucellosis. The results further envisage that Maharashtra, a dairy intensive state of Indian union is at the threshold of a brucella epidemic.

KEYWORDS

AB-ELISA, Brucella, Buffalo, Cattle, RBPT

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CLINICAL MANAGEMENT OF FOETAL DYSTOCIA DUE TO HYDROCEPHALUS IN AN ONGOLE (INDIAN ZEBU) COW

P. Vidya Sagar¹, Krishna Veni², B. Supriya³

ABSTRACT

Dystocia is a major cause of economic loss to the dairy herd. There are many reasons of dystocia. Fetal dystocia due to hydrocephalus in calf is a rare clinical condition that is attributed to genetic defect of the calf caused by a lethal recessive autosomal gene. Prolonged dystocia is a danger to the survival of the cow due to complications like rupture of uterus and hemorrhagia. This paper describes the clinical management of a primiparous Ongole (Indian Zebu) cow suffering from dystocia due to hydrocephalus of the crossbred (Holstein Friesian x Ongole) fetus.

KEY WORDS

Crossbred, Dystocia, Fetus, Holstein Friesian x Ongole, Hydrocephalus, Ongole cow, Treatment
RUSSELL’S VIPER ENVENOMATION IN DOG - CLINICAL FEATURES AND THERAPEUTIC PROFILE

D.A. Pawalkar1, M.D. Kulkarni2, S.B. Swami3, P.K. Muluk4, D.R. Belhekar5, M.A. Shejal6, S.D. Rahane7

ABSTRACT

Snake bites in domestic animals occur during grazing, hunting, or while playing in the garden. Dogs are easy targets, as they attack snakes. There is high risk of mortality from envenomation, if the patient does not get immediate medical attention. In the present case, a dog, bitten by Russell’s viper was presented in the college clinic in a critical condition. The clinical symptoms expressed by the dog were, dullness, depression, dilated pupils, abnormal gait, reduced pedal and pupillary reflexes, and respiratory distress. The extremities were cold. The head and neck were swollen. There were two fang marks on left lateral jaw, and blood was oozing out of the wounds. Hematological examination of blood sample revealed, reduced Hb concentration (8.2g/dl), packed cell volume (41%) and erythrocyte count (6.67 x 10^6/µl). The case was diagnosed as envenomation by Russell’s viper, on the basis of anamnesis, clinical symptoms, and hematological findings. The envenomated dog was treated with a cocktail of drugs, comprising, polyvalent anti-snake venom, Dexamethasone, Enrofloxacin, Avil, Tetanus toxoid, Lasix, Neohepatex, and fluid therapy at appropriate doses and intervals, for three days. The dog fully recovered after treatment.

KEY WORDS

Dog, Russell’s viper, Snake bite, Treatment

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