

The effects of diet and addition of Conjugated Linoleic Acid (CLA) on goat kid complement system activity.

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Abstract / Resumen:

40 newborn goat kids of Majorera breed (20 males and 20 females) were used for evaluating the effect of Conjugated Linoleic Acid (CLA) milk replacer addition in Complement System Activity (CSA). The animals were separated of their dam's immediately after birth and were randomly distributed in four groups. Goat kids were fed with frozen-thawed goat colostrum by bottle-feeding at 2, 14 and 26 hours of life. After colostrum feeding period, the control group (MR) received a commercial milk replacer, the MG group was fed with milk goat, the CLA-2 group received milk replacer plus 2 ml of CLA-60 and the CLA-4 group received milk replacer plus 4 ml of CLA-60. All animals were fed twice daily until day 60 after birth. To determine the CSA effect, blood samples were collected every 24 hours from day 1 to day 5 and at day 10, 20, 30, 40, 50 and 60 of life. Blood samples were centrifuged and the blood plasma fraction was frozen at -80°C until analysis. The CSA was measured using DGHB++ buffer (Dextrose, Gelatin, Hepes) to evaluate total CSA and Mg-EGTA-DGHB buffer to determine CSA alternative pathway. Alternative and total CSA did not differ in our study and increased throughout the experimental period in all groups. MR goat kids showed the lowest threshold CSA until 40 days of life (by 0-15%), while threshold values in MG group was observed until day 10; for the CLA-2 this threshold was found until day 5 of the experiment; nevertheless in the CLA-4 group the activity increased at day 3 of life. In all experimental groups the highest values were observed at 50 and 60 days of life. CSA did not differ significantly at 1, 2, 3, 4, and 10 days of life in all groups; however at day 5, CSA was significantly higher in CLA-4 than in control goat kids. MG had significantly higher CSA at day 50 than MR, CLA-2 and CLA-4. The CSA reached similar values at 2 months of life for MG, CLA-2 and CLA-4 groups; however MR group presented lower CSA at this time. In conclusion, the CLA addition to goat milk replacer improves the complement system activity in goat kids in a similar way that animals fed with goat milk after 2 months of development.

Effects of Sodium Selenite addition to goat colostrum on IgG immune passive transfer. Preliminary results

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Abstract / Resumen:

According to previous studies in calves, selenium addition increased the absorption of IgG from colostrum. The present study tests the potential effect of selenium addition to goat colostrum on goat kid passive immune transfer. For the development of the experiment, 20 newborn Majorera goat kids were used. Animals were separated from their dams and dried immediately after birth. Their umbilical

cords were disinfected, and they were weighed and randomly distributed into two groups (n=10) according to the treatment. Control goat kids group (CG) was fed with frozen-thawed goat colostrums, receiving a total of 150 ml per kg of birth weight by bottle-feeding at 2, 14 and 26 hours of life. The experimental group (Se-G) was fed with colostrum plus 3 ppm of sodium selenite following the same management than CG. From 36 hours of life all animals received milk replacer twice daily until the end of the experiment. Blood samples were obtained from the jugular vein every 24 hours from day 1 to day 5 of life. After centrifuged, blood plasma was frozen at -20°C until subsequently analysis. Blood plasma IgG concentration was determined by using a commercial goat IgG ELISA kit . No significant effect of the sodium selenite addition on blood plasma IgG concentration was found. IgG concentration ranged from 14.34 to 9.57 and 11.80 to 7.11 in CG and Se-G respectively. IgG concentration peaked at day 2 of life in both groups (14.34 and 11.80 in CG and SE-G, respectively) decreasing after that until the end of the experiment (9.57 and 7.11 in CG and SE-G, respectively). Increase in hydration animal status and physiological degradation of colostral IgG and the fact that goat kids are unable to produce immunoglobulins by themselves may explain the decrease of IgG levels throughout the experiment. In conclusion, according to our preliminary results, the addition of 3 ppm of Sodium Selenite to goat colostrum did not improve the newborn goat kids IgG immune passive transfer; however more experiments should be necessary.

The use of Glycerol and Propylene glycol as additives during pasteurization reduce the microbial population in colostrum goats.

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Abstract / Resumen:

The aim of this study was to evaluate the use of Glycerol (Gli) and Propylene Glycol (Pro) at different concentrations as additive during goat colostrum pasteurization. Eleven goats of Majorera breed were milked, using a bucket milker, immediately after partum. After removed the whole available colostrum, that was aliquoted (50 ml) and subsequently frozen at -20°C until treatment. Sampled colostrums were allotted into nine different groups according to treatments with different additives. In control group (CG) 14% of Phosphate Buffer Saline (PBS) was added to colostrum, while in experimental groups colostrum was complemented with different doses of PBS plus diverse percentages of Glycerol or Propylene Glycol. All additions to colostrum were standardized to 14%. After each addition, colostrum samples were heated in a water bath until reach 56°C; after that, the samples remained for 1 hour more into the water bath at 56°C. Subsequently samples were transferred to ice water for fast cooling and storage at 4°C until microbiological analyses were performed later on. Colostrum microbiological population was quantified according to standard procedures on Plate Count Agar. No significant differences between Glycerol and Propylene glycol addition were found at any concentration tested. However, colostrum microbial population was significantly higher in CG samples than in all Glycerol and Propylene glycol groups. As Glycerol or Propylene glycol concentration added was increasing a significant reduction of the microbial population was observed, although no significant differences between groups were observed when 10 or 14% of Glycerol or Propylene glycol was added. In conclusion, according to the preliminary results, the addition of Glycerol or Propylene Glycol before goat colostrum pasteurization is an effective