

Influence of Dietary Yeast Supplementation on the Microbial Profiles of Colostrum and Milk in Quarter Horse Mares

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Bacteria have been isolated in the milk produced by many animal species including horses. Bacterial colonization of the gastrointestinal tract in newborns stimulates digestion and aids in the establishment of the gut microbiome. Dietary yeast supplementation has been reported to influence nutrient digestibility and microbial diversity in the hindgut of horses and may influence bacteria found in their milk. The objective of this study was to evaluate the effects of dietary yeast supplementation on the microbial profiles of colostrum and milk in mares. Eight pregnant Quarter Horse mares (14.5 ± 7.5 yr) were randomly assigned to one of two treatment groups: yeast or control. All mares received 0.5% BW/d of a 16% CP pelleted concentrate, with water and mixed grass hay ad libitum. Mares in the yeast treatment group were fed a targeted dose of 1 g (4.5×10^9 cfu)/45.4 kg of BW/d of a live culture of *Saccharomyces cerevisiae* from d 250 of gestation to 90 d post-parturition. Colostrum samples were collected immediately after parturition (0 h) and at 12 and 24 h post-parturition. Milk samples were collected at 14 and 28 d post-parturition and then every 28 d until 168 d post-parturition. Colostrum and milk samples were pooled by treatment group and time. DNA was extracted and subjected to PCR-DGGE with universal primers specific to 16S rRNA gene sequences to evaluate changes in bacterial diversity. Bacterial DNA could not be detected in milk samples. PCR-DGGE images of colostrum samples were analyzed with BioNumerics software to generate dendrogram comparisons based on the position and number of bands with further evaluation using Principal Coordinate Analysis (PCA). Dendrogram and PCA analysis revealed differences in the microbial profiles of the colostrum due to yeast supplementation and time but further research with species-specific primers is needed to identify the bacteria involved.