

Effects of micro seaweed addition to milk replacer on the immune system of goat kids and lambs

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The aim of present study was to evaluate the effect of micro seaweed addition to milk replacer on the immune system of goat kids and lambs. One hundred and sixty animals were enrolled in the experiment, 80 Majorera goat kids (40 males and 40 females) and 80 Canarian sheep lambs (40 males and 40 females) were randomly assigned into four different groups by species. At birth, the newborns were separated from their mother, they were dried and their umbilical cord was disinfected. After that, they were weighed and assigned into one of the four experimental groups. Goat kids and lambs were bottle fed colostrum from a pool. After colostrum feeding period, goat kids and lambs received their corresponding diets as follows: Control groups were fed with a commercial milk replacer (95.5% dry matter, 23.6% crude protein, and 22.7% ether extract) at 16% (w/w); Cryp. groups received a commercial milk replacer (15.1% w/w) supplemented with 0.9 % (w/w) of a *Cryptocodium cohnii* paste; Chlo. groups received a commercial milk replacer (15.1% w/w) supplemented with 0.9 % of a *Chlorella spp.* paste; Iso. groups received a commercial milk replacer (15.1% w/w) supplemented with 0.9 % of an *Isochrysis galbana* paste. Newborns were individually bottle-fed twice daily (8 am and 8 pm) ad libitum with the corresponding diet until day 60 of life. Blood samples were collected from the jugular vein at birth, 5, 10, 20, 30, 40, 50 and 60 days. Blood samples (5 mL) were collected in 2 type of tubes: heparinized (3.75 mg) for plasma samples and cytometric determinations, and non-heparinized for serum. Samples were centrifuged at 2,136g, for 5 min, 4°C, immediately after collection, plasma and serum aliquots were placed at -20°C. The following parameters were measured in serum/plasma; Chitotriosidase activity, IgG, IgM, Complement system activity (classical and alternative pathways), white blood cells count and CD4 and CD8 counts. No effects of micro seaweed addition to milk replacer were observed in the animals immune status at any tested time. Chitotriosidase activity ranged from 1450 to 2125 nmol/ml/h, IgG concentration ranged from 0 to 24 mg/ml, IgM concentration ranged from 0 to 4 mg/ml, total complement activity ranged from 0 to 50%, white blood cell count range from 3000 to 5100 cells x 10³/ml, CD4 count ranged from 800 to 1310 cells x 10³/ml and CD8 count ranged from 425 to 800 cells x 10³/ml.

Keywords: Immune system, micro seaweed, goat kid, lamb