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The effect of glycerol and Propylene Glycol addition in the pasteurization of colostrum on goat kids immune passive transfer

Morales-delaNuez, A.[1], L.E. Hernandez-Castellano[1], I. Moreno-Indias[1], D. Sánchez-Macías[1], J. Capote[2], N. Castro[1], A. Argüello[1]

(1) Animal Science Department, Universidad de Las Palmas de Gran Canaria, Arucas, Spain.
(2) Instituto Canario de Investigaciones Agrarias, La Laguna, Spain.

In order to ensure a correct immune passive transfer, colostrum feeding is crucial during the first hours after birth. Ruminant placenta is not able to transfer an enough amount of immunoglobulins, and in addition the immature immune system of the neonate is not competent to produce its own Ig during the first weeks of life. The destruction of pathogenic microorganisms and the reduction of endogenous milk microbiota have traditionally been carried out by pasteurization. The glycerol and propylene glycol are used as co-solvent in pharmaceutical or cosmetic industry to improve antibacterial activity of products. In order to test the immune passive transfer using pasteurized colostrum with addition of glycerol and propylene glycol, we used 12 goat kid divided in 4 groups; pasteurized colostrum (CG), pasteurized colostrum with 14% glycerol (GG), pasteurized colostrum with 14% propylene glycol (PG) and pasteurized colostrum with 7% glycerol and 7% propylene glycol (GPG). The IgG, IgM, IgA and chitotriosidase activity were measured in the kids blood. No differences between CG and GG groups were found in immunoglobulins and chitotriosidase activity. Both groups showed a normal evolution in all the studied parameters. However PG and GPG kids showed disease signal in the first 12-24 hour after birth. In conclusion, glycerol addition could be an acceptable option in newborn goat kids, however propylene glycol addition was considered unsuccessful in these animals.