



The Surplus Value of Azorean Bovine Colostrum as an Anti-Aging Immune Supplement for Humans

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Abstract

Colostrum, life's first food of mammals, is a complex mixture of nutrients secreted by mother's mammary glands during the first few days of lactation and its impact on the health of the newborn has been known for a long time [1]. Bovine colostrums (BC), the "early" milk produced by cows during the first several days post-parturition, has an immunological and nutrient profile composition significantly different from "mature" milk [2]. In addition to macronutrients found in milk such as protein, fat, carbohydrate, and micronutrients including vitamins and minerals, BC contain growth factors, antimicrobial compounds, oligosaccharides, and immune-regulating constituents.

Premature aging, diabetes, cancer, cardiovascular diseases are affected by immune system disorders [3]. Consumption of bovine colostrum's glycoproteins may be a method of immunotherapy by promoting the growth and production of our body's own B lymphocytes that provide immunoprotection against harmful bacteria, virus and allergens [4-6]. Azorean BC, collected, as soon as possible after parturition, contains three major classes of immunoglobulins (IgG, IgM, and IgA). The BC mean concentrations of total immunoglobulins (Igs), determined by the combination of size-exclusion and cation-exchanged liquid chromatographies, ranged from 59.1 to 1.1 mg/mL for the first to fifth day, respectively. IgG was the major class of immunoglobulins and ranged from 48.3 to 0.9 mg/mL from the day 1 to day 5 after birth after parturition. The BC drying process by freeze dried technique shows the yield of 99.7 %, ranging from 97.1 to 101.9 %. The objective of our study was to investigate the evolution of Igs concentration in Azorean BC throughout lactation versus time after parturition, and the effect of the freeze drying process in the Igs yield extraction.

Keywords: Premature Aging; Diabetes; Cancer; Cardiovascular Diseases; Pasture-Fed Cows; Food Supplement.

Results

It is well known that BC is a dynamic body fluid whose composition changes throughout lactation period, supplying the newborn with the nutrients specifically needed at each development stage after birth. The Table 1 revealed the comparative evolution of Azorean BC during the first 5 days after birth, and Table 2 showed the minimum and maximum averages of the Igs and IgG concentrations in the Azorean BC from the first day after birth. The Igs content of Azorean BC, after pasteurization, is slightly higher than the published literature that ranged from 54 to 0.8 mg /mL [7, 8]. According to Green et al,[9], pasteurization of colostrum, reported an average 28.4% loss of native IgG. The drying process by freeze dried technique shows the BC yield of 99.7 %, ranging from 97.1 to 101.9 %.

Table 1: Comparative evolution of the constituents (IgG concentrations) of Azorean BC from Holstein-friesen cows during the five days after parturition.

Colostrum Proteins	Day 1	Day 2	Day 3	Day 4	Day 5
IgG	48.3 ± 2.3	12.5 ± 0.9	2.3 ± 0.4	1.1 ± 0.1	0.9 ± 0.1
Igs (mg/mL) ^a	59.1 ± 3.1	16.5 ± 3.11	2.9 ± 0.5	1.3 ± 0.3	1.1 ± 0.2

Note: ^aAverage of Holstein colostrum (n=6).

Table 2 : Minimum and maximum averages of the Igs and IgG concentrations in the Azorean BC from the first day after birth.

Colostrum Ig Proteins ^a Day 1 ^b	Minimum	Maximum	Average
Igs mg/mL ^c	37.9	68.3	59.1 ± 3.1
IgG ^d	31.2	59.1	47.1 ± 2.5

Note: ^adecaseinated and skimmed colostrum whey; ^bFirst milking; ^cIgs proteins in raw milk ranged from 0.04 to 0.74 mg/mL; ^dIgG is composed of 90% IgG1 and 10% IgG2.

Conclusion


It is well known that aging process is accelerated as our immune system is depleted. The Azorean BC can help to reverse this process by boosting and replacing the actual immune factors that our immune system needs to promote normal cell growth. The Azorean BC was collected only from pasture-fed cows that are pesticides, antibiotic and growth hormones free, that is probably, in parallel with New Zealand colostrum, the best around the world. It is well known that naturally pasture-fed animals develop immunity to a wider range of pathogens than those that are fed with processed forage. According to Butler [7], president of the International Institute of Nutritional Research, "it would be hard to imagine any nutritional substance more natural or beneficial than colostrum, and is not just for adults; I have seen remarkable results with babies and children".

The Azorean BC, is probably one of the best around the world, and offers enormous possibilities for use, at an inexpensive

approach, as an immune system enhancer and anti-aging food supplement. Additionally, the Azorean BC has the potential industrial application, within more than 100.000 cow's universe, that may have some significant impact in the economy of the Azores Islands.

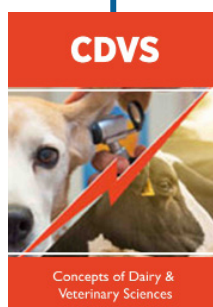
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