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# Determination Indirectly the Content of Amine Biogenic and Factors of Regenerative Cell Which Canti lever Ideaza System Immune to Athletes in Colostrum Bovine

**ORBAN Oana Maria[1], Adrian CÎMPEAN[2*], Horea ORBAN[3], Vlad ORBAN[3], Horea ROTARU[2], Mihai ORBAN[1]**

[1]*Faculty of Horticulture, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, 3-5 Calea Manastur, 400372, Cluj-Napoca, Romania*
[2]*Faculty of Veterinary Medicine, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, 3-5 Calea Manastur, 400372, Cluj-Napoca, Romania*
[3]*Onisifor Ghibu High School, 12-14 Alexandru Vlahuță St., 400310 Cluj-Napoca, Romania*

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**Abstract**

Colostrum is the first fluid obtained from the mammary glands of mammals after birth and is intended for ingestion by the newborn during the first hours of life. There is a considerable amount of scientific evidence that if a calf does not receive an adequate amount of high quality complete colostrum, it will be more vulnerable to pathogens in its environment which will lead to increased morbidity, a significant rate of mortality and inadequate development during the youth period.

**Keywords:** breast tissue, *mammary gland, protein.*

## 1. Introduction

Colostrum formation in the pregnant cow is initiated approximately 3-4 weeks before calving, when a limited amount of fluid containing small amounts of growth factors and other substances is synthesized and elaborated in breast tissue [1].

The process is regulated by a number of other hormones, one of the most important being progesterone, which attaches to the special receptors on the cells of the mammary gland and prevents them from secreting any fluid into the gland during the largest period of gestation [2].

Approximately two weeks before birth, these substances influence the appearance of specific receptors on the surface of mammary gland cells, which will facilitate the transfer of component blood from the cow to the mammary gland, including the immunoglobulins (antibodies) required to transmit passive immunity to calves at birth and various growth hormones and growth promoters needed to induce and support the development of the new-born calf.

About 2 days before birth, the hormonal balance begins to change. Production of abundant secretions and switching on the capacity of breast tissue cells to synthesize various substances, including lactose, is initiated [3, 4].

At birth, when the placenta is removed, the progesterone level drops dramatically in the uterus and its secretory inhibitory control is removed.

* Corresponding author.
Tel: +40-264-596384
Fax: +40-264-593792
E-mail: adrian.cimpean@usamvcluj.ro

At the same time, a protein-based substance develops in the cells of the mammary gland mucosa, which essentially blocks any further transfer of substances from the mother's blood to the cow's udder. The composition of the fluid in the mammary gland of the cows at birth is the true colostrum and reflects the functional changes that have occurred in the gland up to that time [5, 6].

This product is characterized by:

- high protein concentration, most of them being IgG;
- contains the highest concentration of growth factors;
- contains other hormones and additional metabolically active substances;
- is low in lactose content
- is high in fat

After childbirth, one of the most important factors regarding the subsequent composition of the secretions of the uterus, is the physical removal of fluid from the mammary gland, which consisted in the complete filling of the uterus within a maximum of two hours from the moment of birth. Elimination of true colostrum in this interval triggers the production of large amounts of transitional milk secretion by the cells of the mammary gland [7].

Given the peculiarity of the sindesmocorial placenta in the cow, the transfer of biologically active substances from the mother's blood to the calf is blocked.

Colostrum mainly contains substances synthesized by the cells of the mammary gland and thus will have a different composition from that of the fluid initially contained in the mammary gland at birth. The fluid expressed after milking the first colostrum is known as "Transition milk" [8, 9]. Thus, the highest quality bovine colostrum, containing maximum concentration of biologically active substances, is collected in a single milking in the first six hours after calving.

The composition of rapidly changing colostrum in the mammary gland of the cow correlates very well with events that occur in the new body - calf born. During the first six hours of life, the calf's mucosa does not secrete acid and there are very few enzymes present at this level [10, 11].

Colostrum at first milk also contains substances that inhibit the action of some enzymes. Therefore, these conditions work in favor of having biologically active substances in complete colostrum process through the stomach of his calf in the upper portion of the small intestine, without being broken down.

During the first 6-8 hours of life, an area located at the top of the duodenum specialized sites where biologically active substances can be absorbed and transported directly into the bloodstream of the calf [12, 13].

After this period, the stomach begins to secrete acid, enzymes appear and the specialized absorption area in the small intestine changes dramatically, so that most biologically active substances in colostrum are no longer absorbed.

This process is helped by the fact that the calves are born with a well-developed system of lymphoid tissue beneath their tongue and at the back of their throat that persists throughout their entire life. Many biologically active substances are absorbed through these wipes when the mother [14].

Bacterial contamination of collected colostrum may limit the uptake of antibodies.

A large number of bacteria in the collected colostrum can bind to antibodies and inhibit their absorption in the body's calf. Bacteria also contribute to an increased rate of exposure to diseases. Basic hygiene is an important strategy for reducing the risk of collected colostrum contaminates [15].

## 2. Material and Method

Minimum hygiene measures for obtaining a quality colostrum. Clean colostrum collection to ensure it is not contaminated with organic content (urine, feces, etc.).

Use for harvesting of clean garments (protective equipment, buckets, container, etc.). Keeping cold colostrum in healthy conditions in both refrigeration and freezing conditions [16, 17]. It is compulsory to keep the colstrum in individual lots. It is forbidden to mix the colostrum or dilute it with any other product, because it decreases its protection capacity at the time of administration.

Although it has been shown that some individuals have a better antibody uptake rate and an adequate assimilation of colostrum, [18, 19].

## 3. Results and Discussions

Brix optical or digital refractometer, is a valuable tool that can be easily used on the farm to measure the immunoglobulin content of colostrum. The scale on this instrument is designed to measure the amount of sucrose in a solution, but Brix values may be related to the IgG content in colostrum. A Brix value of 22% corresponds to 50 mg/ml IgG. The advantages of using a refractometer over colostrometry is that the results of the refractometer are not temperature dependent.

Table 1. The results read at the refractometer brix on the samples of fresh colostrum taken correlated with the calculated IgG level

| No. | Colostrum quantity | Refractometer value (%) | Level IgG (mg/ml) |
|---|---|---|---|
| 1 | **6.4** | 20.6 | 46.80 |
| 2 | **4.9** | 21.3 | 48.40 |
| 3 | **5.2** | 19.9 | 45.22 |
| 4 | **6.8** | 21.1 | 47.95 |
| 5 | **5.8** | 21.4 | 48.63 |
| 6 | **4.5** | 20.7 | 47.00 |
| 7 | **7.2** | 17.2 | 39.00 |
| 8 | **6.2** | 19.0 | 43.20 |
| 9 | **6.5** | 18.2 | 41.36 |
| 10 | **7.4** | 17.3 | 39.30 |
| 11 | **5.9** | 20.6 | 46.8 |
| 12 | **6.2** | 20.3 | 46.13 |
| 13 | **5.7** | 19.4 | 44.00 |
| 14 | **6.5** | 20.6 | 46.8 |
| 15 | **7.5** | 17.6 | 40.00 |
| 16 | **6.8** | 17.5 | 39.77 |
| 17 | **6.4** | 20.6 | 46.8 |
| 18 | **5.8** | 19.5 | 44.30 |
| 19 | **6.7** | 20.6 | 46.8 |
| 20 | **5.9** | 20.4 | 46.36 |
| 21 | **4.6** | 19.8 | 45.00 |
| 22 | **6.7** | 21.3 | 48.40 |
| 23 | **6.2** | 17.5 | 39.77 |
| 24 | **5.9** | 18.2 | 41.36 |
| 25 | **4.8** | 20.5 | 46.60 |
| 26 | **6.4** | 19.6 | 44.54 |
| 27 | **6.2** | 18.9 | 42.95 |
| 28 | **7.0** | 18.6 | 42.27 |
| 29 | **6.4** | 19.3 | 43.86 |
| 30 | **6.8** | 18.1 | 41.13 |

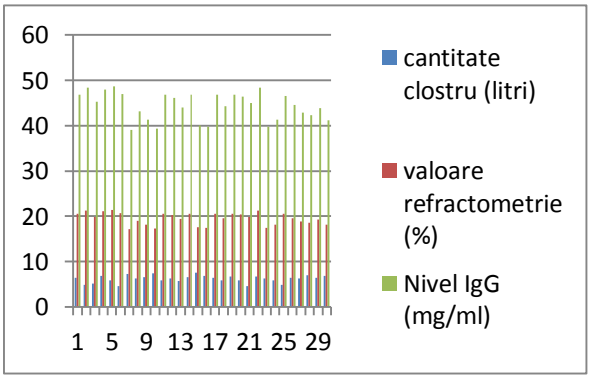


**Figure 1**. The reading results at the refractometer brix on the samples of fresh colostrum taken correlated with the calculated IgG level

From the previous table and graph it appears that the experimental group includes two categories of cows from the point of view of the quality of the colostrum. A number of 24 cows have a colostrum with an IgG content between 40-50 mg/mL these are particularly valuable, and will be the source of non-specific immunity and immunoglobulins.

## 4. Conclusions

The excess of colostrum that remains after the consumption need by the calf will be frozen and administered in sports, regardless of the intensity level of the sport practiced. The second group of cows have a qualitatively low colostrum, with an IgG content between 30-40 mg/mL. This colostrum can be a valuable source of immunity after consumption.

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