Researches Regarding the Qualitative Characteristics of Milk Collected from Cows Milked in Three Sequences

Camelia RĂDUCU

University of Agricultural Sciences and Veterinary Medicine, Faculty of Animal Science and Biotechnologies, 3-5 Manastur Street, 400372 Cluj-Napoca, Romania; craducu2001@yahoo.com

Abstract. Research has targeted milk quality parameters collected morning and evening milking on three sequences. The following parameters were analyzed: fat, protein, lactose, somatic cell count and weight of fatty acids depending on carbon chain (Jensen, R.G., 2002; Kurtz, F.E., 1987). Taking into account the fat content in both the morning milking and at evening, it increases the dynamic sequences of milking, in the sense that the second sequence of milking the fat content is higher by 75% from the first sequence milking. Differences between milking are very small and insignificant. A different aspect is the evolution of the milk protein content, meaning that it has a constant character, maximum differences of 5% between the second and third sequence of milking sequence of events, look at developments are observed and lactose content in milk. With regard to content in somatic cells, their development is of a tortuous, but at the same time on three different sequences of milking. Of fatty acids sequences have a significant weight in the morning to evening milking are palmitic and oleic acids and with low are mostly the other fatty acids (myristic, lauric and caprylic).

Keywords: milk, quality, fatty acids

INTRODUCTION

With modern civilization, the consumption of milk and milk products per habitant is an important indicator of living standards. The priority objectives are especially the ones that makes refers to a continuous increase in the number of cattle, the total and average milk production of quantitatively and qualitatively, in terms of achieving products with physical-chemical and organoleptic qualities higher, for a competitive level demanded by consumer (Mireșan Vioara et al., 2009).

It also aims to increase economic efficiency of operation by adopting technologies cattle operation with low-conventional energy consumption per unit product and maximum productivity of labor.

MATERIALS AND METHODS

The research was conducted on a herd of 10 cows bred primiparous Baltata românească maintained in loose housing, a dairy farm in Cluj County. The studied biological material was clinically healthy, which was given only feed ad libitum. Indices of milk quality were followed were analyzed in laboratories at FCCL Cluj and Cluj USAMV.

The results were statistically processed by the usual statistical methods and are presented in tabular work.
RESULTS AND DISCUSSION

In the study of qualitative features of cow's milk, we consider the determination of quality indices milking sequences. Results in this respect shows a marked increase of milk fat in both the morning milking and in the evening, meaning that the milk content of this component increases from first to third hand milking while the other parts remain equal. For the set, milk components development falls within the existing literature (Tab. 1), but regarding somatic cells as they emerge a sinuous evolution.

On the morning milking somatic cell number increase by nearly 56% in the second sequence from the first, that they continue to decline by 21%, something which reveals an evening milking decreased somatic cell count from first to second sequence with 46%, after which the amount of such traits is almost equal to the first sequence. Comparing the two sequences milking morning at record 65,000 somatic cells from somatic cells 36,000 evening milking which represents a difference of 75.1% (Camelia Răducu 2009).

<table>
<thead>
<tr>
<th>Milking time</th>
<th>n</th>
<th>Fat %</th>
<th>Protein %</th>
<th>Lactose %</th>
<th>SCN thousandths</th>
<th>Milking milk kg</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Morning</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>10</td>
<td>2.22±0.01</td>
<td>3.22±0.01</td>
<td>5.03±0.01</td>
<td>52±0.33</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>3.89±0.01</td>
<td>3.24±0.01</td>
<td>5.03±0.01</td>
<td>81±0.89</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>6.18±0.02</td>
<td>3.25±0.02</td>
<td>4.92±0.02</td>
<td>64±0.64</td>
<td>4</td>
</tr>
<tr>
<td><strong>Evening</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>10</td>
<td>2.23±0.01</td>
<td>3.28±0.01</td>
<td>5.13±0.02</td>
<td>34±0.37</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>3.83±0.01</td>
<td>3.30±0.02</td>
<td>5.10±0.01</td>
<td>10±0.31</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>6.30±0.02</td>
<td>3.14±0.02</td>
<td>5.03±0.03</td>
<td>31±0.59</td>
<td>4</td>
</tr>
</tbody>
</table>

In the researches relating to the structure of fatty acids according to carbon chain and sequence of milking (Tab. 2) has been found that there are differences on same fatty acid content of the sequence of milking, but they show differences in sequences morning and evening milking. Of fatty acids that have a significant weight increase in sequences of events from the morning milking, is stearic acid and decreases in the two halves of milking are in most other fatty acids, among which the myristic, lauric and caprylic. If in addition to the evolutionary nature of the fatty acid content in milk compared to the two halves of milking and within the sequences, albeit at different levels, but in all cases were observed ascending priority nature of oleic acid and palmitic, whose share is highest sequence especially in the last milking, then the milk fat content is higher (Tab. 2). Structuring total volatile fatty acids determined in nine groups of sizes, fatty acids with even number carbon chain reveals some particular aspects. First, the fatty acids in the chain of eight carbon atoms have a decreasing trend of milking the sequences of both halves, while the fatty acid chain of 18 and more than 18 carbons have a very high percentage, but overall, the trend growth from first to third milking sequence, but that increase is partly on account of reverse evolution of the fatty acids of 16 carbons and 17 carbons. A group of fatty acids seem to structure 16 and over 18 indicates that carbon chains have a weight of over 70% in the second half milking.

Materially main fatty acids in milk, has the largest share followed by oleic acid palmitic acid, so acid plamitic has averaged 32% in morning milking which decreases by 12% but the average milking sequences from evening, and oleic acid sequences increase the
average morning milking from the evening with Almost 33%. These values are correlated with a balanced ration with that the animals were fed (Camelia Răducu 2009).

**CONCLUSIONS**

- The results show that the percentage of fat increases from first to third milking sequence, while the other components remain constant. This demonstrates the necessity of collecting milk from the mammary gland until the last drop (has the highest percentage of fat).

- The major groups of fatty acids was found that fatty acid chain between 6:16 carbons show an increase in the sequence of the three sequences of the morning milking, something which is true for evening milking, underlining that If the evening milking fatty acids in this group are reduced by over 15% by weight. Meanwhile, chain fatty acids ranging from 17 to 19 carbons are of the reverse that they grow as a share of the evening milking milk with 22.90%.

- The determinations is a step aimed at determining the proportion of major fatty acids in milk milking sequences, so finally is able to use a differential harvesting of milk produced in each milking differentiated in terms of favorability of processing.
REFERENCES