COW MILK QUALITY IN RUCĂR AREA

Timar A. *

*University of Oradea, Faculty of Environmental Protection, 26 Gen. Magheru St., 410048 Oradea; Romania, e-mail: atimar@uoradea.ro

Abstract

This study research the quality of fresh cow milk in order to optimised the producing daiery products. Althrough we try to find how parameters of milk are changed during studied period and if this parameters are significant variable. The final results will be integrated in an larger study toghether with the research results regarding the quality of sheep and buffalo milk during studied period. The study was conducted in 2011 during spring in Rucăr, Romania area.

Key words : cow milk, quality parameters, milk conductivity, lactose.

INTRODUCTION

For evaluation the cow milk quality we study Organolepticall (taste, smel and color) and Physico – chemical parameters. Methods used for analysis are according with romanian standards and are quottation in latest studys. The device used was Lactostar from FunkeGerber company. The cow milk was colected from the farm of Duruianu Ionut. The milk was colected from two cows, Bălţată Românească breed. The milk was colected in the morning at first milking and the cows was in free stabulation on the hill pasture without fertilisation.

MATERIALS AND METHODS

Taking samples: We use to take samples glass probes. From serface and upper layers samples was taken with cilindrical probes after homogenisation. Procedure was according to S.TA.S. 9535/1-74 and STA.S. 9535/2-74.

1.Organoleptical analysis: Was study colour, aspect, smell and taste of milk according with Georgescu Gh., 2005. If those parameters was out of normal range milk was considered out of standards and study of those samples was ended.

2.Physical analysis : We study follow parameters : fat percent, non faty dry matter, protein content, acidity, lactose ratio, freezing point, mineral content and milk conductivity.

We use the LactoStar device from Funke Gerber with following parameters :

Table 1. LactoStar parameters

Constituents	Disolving	Repetability
Fat	0,01 %	+0,02%
Protein	0,01 %	+0,03%
Lactose	0,01 %	+0,03%
SNF (nonfaty dry matter)	0,01 %	+0,04%
Freezing point	- 0,001 ºC	+0,02%
Mineral content	0,01 %	+0,02%
Conductivity	0,01 %	+0,02%

3. Experimental Methodic

Samples was study according following schema :

V_1 – 11 May; V_2 – 12 May; V_3 – 13 May ; V_4 – 14 May, V_5 – 15 May, V_6 – 16 May, V_7 – 17 May, V_8 – 18 May, V_9 – 19 May, V_{10} – 20 May, V_{11} – 21 May, V_{12} – 22 May.

4. Biological material

We study cow milk from two cow Bălțată Românească breed from Rucăr area, farm Duruianu Ionuț.

5. Statistics methodic

We use ANOVA statistic tests for data processing.

RESULTS AND DISCUSSION

1.Organoleptical analysis:

Colour, Aspect, Smell and Taste was according with standards and was no deviation from this point of wiew.

2.Physical analysis :

Table 1. Fat percent, %

No.	Sample	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12
1	Fat percent	3,21	3,11	3,23	3,31	3,12	3,45	3,32	3,14	3,53	3,21	2,98	3,11

The fat percentage was in the normal range of cow milk. The minimum was 2,98 % as a consequence of the periode and because intensive milking during week.

Table 2. Non faty dry matter, %

No.	Sample	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12
1	SNF, %	9,69	8,91	9,23	9,38	9,64	9,42	9,15	9,57	9,47	9,34	9,61	9,28

The SNF is at the higher rates because of the minimum production of milk. That reveal the high value of the milk colected in this periods and it will be valuable for milk evaluation for chees production.

Table 3. Protein content, %

No.	Sample	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12
1	Protein content, %	3,67	3,71	3,41	3,47	3,59	3,67	3,71	3,51	3,47	3,21	3,12	3,33

The protein content had the same evolution like fat content and is not afected by the period.

Table 4. Acidity, Tº

No.	Sample	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12
1	Acidity, Tº	18	17	18	16	16	17	16	18	19	18	17	18

The milk was fresh, the acidity reveal that the milk was analized after milking and is suitable for cheese production.

Table 5. Lactose ratio, %

No.	Sample	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12
1	Lactose ratio, %	5,33	5,21	5,61	5,32	5,12	5,34	5,41	5,27	5,29	5,28	5,17	5,24

High ratio of lactose are the consequence of the green feeds and the suplements in cow ratio.

Table 6. Freezing point, Cº

No.	Sample	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12
1	Freezing point, Cº	-0,571	-0,562	-0,531	-0,547	-0,555	-0,573	-0,583	-0,567	-0,581	-0,532	-0,547	-0,571

Freezing point is normal and reveal that are no falsifications of the milk.

Table 7. Mineral content, %

No.	Sample	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12
1	Mineral content, %	0,76	0,75	0,72	0,77	0,73	0,75	0,74	0,75	0,75	0,75	0,75	0,76

Mineral content is very high at the maximum level for cow milk because the low production and feeding cows with fresh grass.

Table 8. Milk conductivity, mS/cm

No.	Sample	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12
1	milk conductivity, mS/cm	29,56	29,54	29,54	29,56	29,51	29,55	29,56	29,56	29,54	29,54	29,56	29,56

The milk conductivity reveal that was no exogen NaCl inside, the milk is authentic.

CONCLUSIONS

For milk allocation in processing flow it is necessary to have a real image of his quality in real time.

For a better and quick feedback of the milk quality management we use the high-tech Lacto Star electronic milk analyzer for basic physical – chemical parameters. The device was connected to a printer and was also connected to a portable personal computer.

Because of high content in lactose and proteins the milk analyzed is the best row material for acid dairy products. That improves the organoleptical parameters like taste, flavor and viscosity.

The high content in proteins recommends the milk also for cheese production.

Milk freezing point is at levels that are normal and prove the milk good quality.

The milk conductivity reveal that was no exogen NaCl inside, the milk is authentic.

The analyzed milk had all parameters in normal range at the high levels, proper for all kind of dairy products.

There was no significant diferences in the values of analyzed parameters.

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