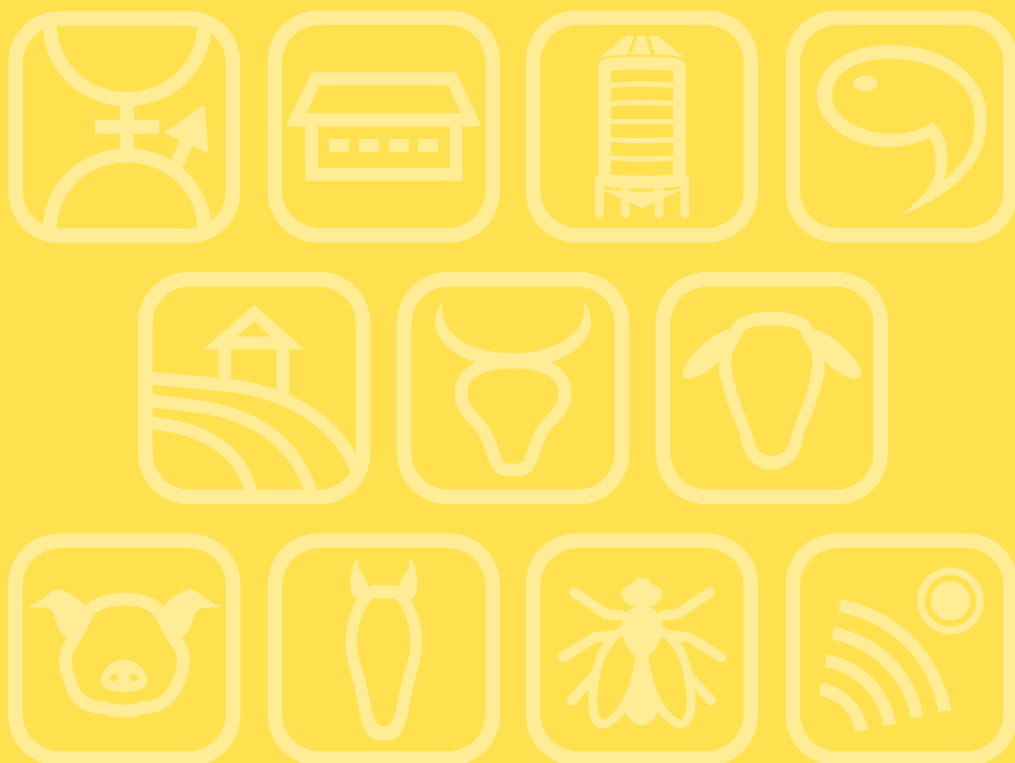


Book of Abstracts of the 72nd Annual Meeting of the European Federation of Animal Science



**Book of abstracts No. 27 (2021)
Davos, Switzerland
30 August – 3 September 2021**

**Book of Abstracts of the 72nd Annual Meeting of the
European Federation of Animal Science**



EAAP

European Federation of Animal Science

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Davos, Switzerland, 30th August – 3rd September, 2021



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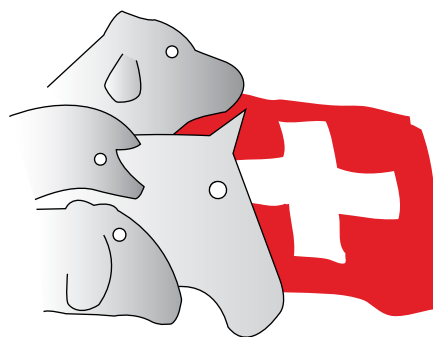
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European Federation of Animal Science has close established links with the sister organisations American Dairy Science Association, American Society of Animal Science, Canadian Society of Animal Science and Asociación Latinoamericana de Producción Animal.

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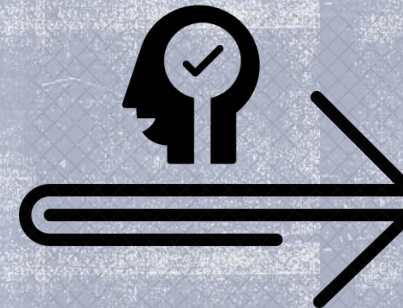
The effect of pasteurization in the expression of bovine milk microRNA*L. Abou El Qassim and L.J. Royo Martín**Servicio Regional de Investigación y Desarrollo Agroalimentario, Animal Nutrition, SERIDA Ctra AS-267, PK19, 33300, Spain; loubna@serida.org*

The edaphoclimatic conditions in Asturias (northwest Spain) enable the presence of milk production systems oscillating between farms based on grazing and low consumption of conserved feed and forages as well as a low density of animals per surface, and intensive farms with confined animals, with a higher density, and higher consumption of conserved feed and forages. Identifying milk according to its origin is a useful way to highlight the positive effects of grazing farms on the environment, milk quality, animal welfare, and social aspects. MicroRNAs (miRNAs) are 21-25-nucleotide small RNAs that perform various functions within cells, including gene expression regulation. They can be profiled through microarray, quantitative real-time Polymerase Chain Reaction (RT-qPCR), or sequencing. Their expressions vary according to the genetic context and external factors to the animal (feeding, handling, etc.). Besides, these molecules are resistant to adverse physicochemical conditions, which make them potential biomarkers. In previous studies, a set of miRNAs from raw milk with differential expression according to some ingredients of the diet were determined. However, it is important to evaluate the effect of technological treatments, in milk factories, (pasteurization, fermentation, sterilization, etc.) on these miRNAs. Furthermore, taking into account the potential bioactivity of milk according to its miRNAs content, it is important to assess miRNAs milk content intended for human consumption. In the present study, we analysed the effect of pasteurization on the miRNAs determined as biomarkers. For that purpose, the expression of nine miRNAs was analysed in the same volume of twenty tank milk samples before and after pasteurization. The expression analysis of the different biomarkers in pasteurized and non-pasteurized milk showed that the expression of most miRNAs was lower after pasteurization, although without significant differences ($P < 0.05$). Moreover, pasteurization of raw milk affects differently fat and cell fraction. These results suggest that miRNAs are quite resistant to pasteurization.

MicroRNAs as biomarkers of cow milk origin and the effect of pasteurization

L. ABOU EL QASSIM, L.J. ROYO

SERVICIO REGIONAL DE INVESTIGACIÓN Y DESARROLLO AGROALIMENTARIO (SERIDA) Email: loubna@serida.org



Definition: microRNAs are small non-coding RNAs of 21–25-nucleotide, they have a central role in gene regulation in eukaryotes.

Objectives:

- ✓ The use of miRNAs as biomarkers of milk's origin
- ✓ The effect of pasteurization on milk's miRNAs



Material and methods



Raw milk (n=10)



Pasteurized milk (n=10)

Milk fat and cells

miRNA extraction

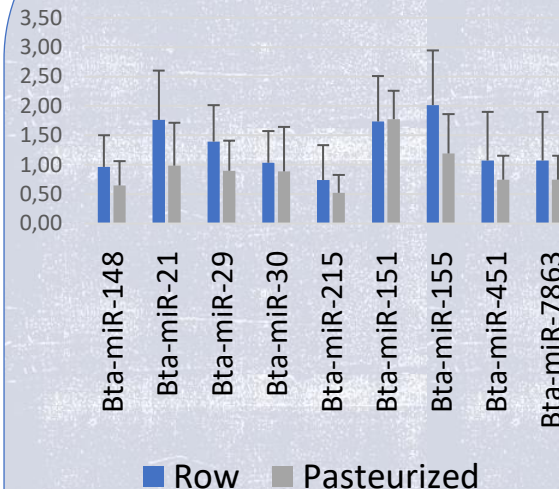
cDNA synthesis

RT-qPCR

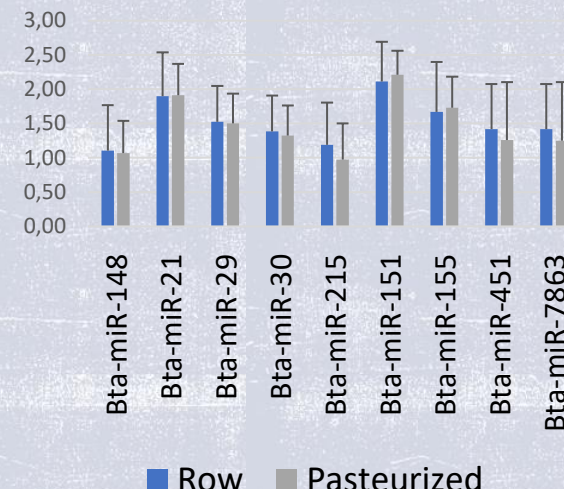
T-test statistical for paired data

Results and conclusions

Milk Cells



Milk fat



- ✓ The expression of most miRNAs is lower after pasteurization, without significant differences.
- ✓ Pasteurization affects differently fat and cells fraction
- ✓ miRNAs are quite resistant to pasteurization.

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