

Milk microRNA-146a as a potential biomarker in bovine tuberculosis

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Summary

In this research communication we exploited the potential use of milk microRNAs (miRs) as biomarker for bovine tuberculosis (bTB). bTB is a zoonotic disease caused by *Mycobacterium bovis* which affects animal health influencing herd economic sustainability. Diagnosis is based on skin delayed-type hypersensitivity reaction and quantification of interferon gamma but both techniques are influenced by several confounding factors. Thus, new methods for early diagnosis are required and miRs have been used as promising biomarker for both infectious and non-infectious diseases. For doing that, we analyzed the expression of four immune-related miRs in 200 cows grouped in cases and controls respect to positivity to tuberculosis. The analysis showed a different magnitude expression in both groups indicating that active tuberculosis could influence miRs expression. Then, we used expression values of miR-146a, the highest differentially expressed miR, for ROC analysis. In order to determine a test cut-off value for miR-146a expression that would differentiate cases and controls, a value for the miR-146a expression higher than 8 was selected as this gave a test specificity and sensitivity of 80.0% and 86.0% respectively. These values confirm the possibility of using miR-146a as milk prognostic biomarker for bovine tuberculosis.