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ABSTRACT SUBMISSION

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COMPLEX B VITAMIN ENRICHMENT FROM MILK TO DAIRY PRODUCTS

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INTRODUCTION

Dairy products are considered good suppliers of B vitamins (B₂, B₅, B₁₂) due to the concentrations found in these foods and to feeding habits (Vissers et al., 2011). The ration fed to dairy cows would influence the B vitamin content of milk (Graulet and Girard, 2017) but the consequences on dairy products content remain unexplored.

OBJECTIVE

Aim was to explore if variations in raw milk B vitamin concentrations could impact B vitamin concentrations in the corresponding dairy products.

MATERIALS AND METHODS

At the end of May, 20 cows were divided in 2 groups receiving a diet based either on pasture or corn silage for 4 months. Raw tank milks were collected 3 times for production of raw milk cheeses or yogurts, during the last week of the period. B vitamins (B₁, B₂, B₅, B₆) were analysed by UPLC-MS after deproteinization (Laverroux et al., 2021) and B₉ and B₁₂ by chimoluminescence using the ChLia folates-B₁₂ kit. Concentrations were related to dry matter to evaluate transfer from milk to cheese and yogurt.

RESULTS AND DISCUSSION

Vitamin B₂ was the highest in raw milk of grazing cows (2.91 vs 2.60 mg/L, p<0.05). At the opposite, vitamin B₅ concentration was the highest when cows were fed corn silage (3.16 vs 3.08 mg/L, p<0.05). Related to dry matter, strong decreases in B₁ (-86%), B₂ (-63%), B₅ (-88%), B₆-pyridoxal (-90%), folates (-78%), vitamin B₁₂ (-50%) and increases in B₆-pyridoxamin (+60%) concentrations were observed between milk and cheese curd. Decreases were probably resulting of draining. Folates (+73%), B₆-pyridoxamine (+40%), and B₁ (+13%) concentrations increased in yogurt while B₅ (-28%), B₆-pyridoxal (-36%), and vitamin B₁₂ (-86%) decreased and B₂ remained unchanged. These changes probably resulted from milk heating during the process and synthesis by ferments.

CONCLUSION/PERSPECTIVES

Due to technological processes, huge losses of B vitamins were observed in raw milk cheeses but they were more moderate in yogurts. For this reason, raw milk B vitamin enrichment through cow diet did not led to subsequent dairy products enrichment with theses compounds.