**Contrasted status in B vitamins between dairy cows and goats fed various lipid supplements**

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B vitamin status and metabolism are still known in ruminants in spite of their importance for the nutritional value of dairy products (Coudray et al., 2011), productive performance (Girard & Matte, 2005) and apparent link to feed efficiency (Meale et al., 2017, Li & Guan, 2017). In ruminants, B vitamins are from dietary and ruminal origins except B12, exclusively synthesized by rumen bacteria (Graulet, 2014). A better understanding of the factors modulating B-vitamin status in ruminants would help to improve performance of livestock systems. We compared the B-vitamin status in 12 Holstein dairy cows and 12 Alpine dairy goats receiving the same diets supplemented or not with lipids for 28 d-periods in 2 species distinct (4 × 4) Latin square designs. Diets were based on hay (45 %) plus concentrates (55%) containing no additional lipid (CTL), or supplemented with corn oil and wheat starch (COS), marine algae powder (MAP), or hydrogenated palm oil (HPO) (Fougère et al., 2018). Vitamins were analyzed by liquid chromatography for B2 and B6 (Meale et al., 2017 ; Laverroux et al., unpublished) and radioassay for B9 and B12 (Duplessis et al. 2015) in plasma and milk at the end of each period.

Cows had higher B2 (x2), B6 (x2 to 3) and B9 (x5) plasma concentrations than goats (p<0.001) whereas B12 concentration was 3.4-fold higher in goats (p<0.001). In milk, B6 concentrations were higher in goats (+21%,*p*<0.001) than in cows. Riboflavin (B2) concentration was similar between the 2 species whereas folates (B9) and vitamin B12 concentrations were 10- and 16-fold higher in cow milk, respectively. The COS diet increased plasma B-vitamin concentrations in both species (p<0.001), and cow milk concentration of B2 and B9 (p<0.001). The MAP diet also induced significant increases in plasma B vitamin concentrations, especially B2 in goats and B6 and B9 in cows. Milk B6 concentrations were lightly reduced and B9 was increased in cows fed MAP diet. The HPO diet slightly increased vitamin B12 secretionin cow milk. This original study compared plasma and milk B vitamins in dairy cows and goats fed the same diets. Species-specific responses observed in ruminants fed COS or MAP diets *vs* CTL suggest distinct mechanisms acting on B-vitamin supply, likely their dietary intake and the modulation of rumen bacterial activities. Discrepancies in the pattern of response between plasma and milk also suggest the existence of regulatory mechanisms of vitamin B mammary uptake and milk secretion.

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