

UMR1213 Herbivores – Anne Ferlay

Mes activités de recherches portent sur

- la régulation hormonale et nutritionnelle de la lipolyse du tissu adipeux chez le ruminant,
- sur les effets des **facteurs nutritionnels** (nature des fourrages, oléagineux) et **physiologiques** sur la composition lipidique du lait des ruminants laitiers et donc sur leur **qualité nutritionnelle**,
- sur le **phénotypage** à haut débit des laits de ruminant **par des méthodes infra-rouge** (prédiction des composés d'intérêt nutritionnel), et
- sur la **prédition de la production et de la composition de la matière grasse laitière** à partir des flux de nutriments absorbés (par une approche par méta-analyse).

Auteur ou co-auteur de près de 101 articles scientifiques (incluant synthèses et chapitres d'ouvrage, facteur H = 34).

Membre du Comité d'Experts Scientifiques Alimentation Animale de l'ANSES durant 2 mandats (2012-2015, et 2015-2018)

Consumption of milk and dairy products is important in Western industrialised countries. Fat content is an important constituent contributing to the nutritional quality of milk and dairy products. In order to improve the health of consumers, there is high interest in improving their fatty acid (FA) composition, which depends principally on rumen and mammary metabolism. This paper reviews the lipid metabolism in ruminants, with a particular focus on the production of trans and conjugated linoleic acids (CLA) and conjugated linolenic acids (CLnA) in the rumen. After the lipolysis of dietary lipids, an extensive biohydrogenation of unsaturated FA occurs by rumen bacteria, leading to numerous cis and trans isomers of 18:1, non-conjugated of 18:2, CLA and CLnA. The paper examines the different putative pathways of ruminal biohydrogenation of cis9-18:1, 18:2n-6, 18:3n-3 and long-chain FA and the bacteria implicated. Then mechanisms relative to the de novo mammary synthesis are presented. Ruminant diet is the main factor regulating the content and the composition of milk fat. Effects of nature of forage and lipid supplementation are analysed in cows and small ruminants species. Finally, the paper briefly presents the effects of these FA on animal models and human cell lines. We describe the properties of ruminant trans 18:1, when compared to industrial trans 18:1, CLA and CLnA on human health from meta-analyses of intervention studies and then explore the underlying mechanisms.