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# Consumption of raw or heated milk from different species: An evaluation of the nutritional and potential health benefits

Claeys W.<sup>1\*</sup>, Verraes C.<sup>1</sup>, Cardoen S.<sup>1</sup>, J. De Block<sup>2</sup>, A. Huyghebaert<sup>3</sup>, K. Raes<sup>4</sup>, K. Dewettinck<sup>3</sup>, & L. Herman<sup>2,5</sup>

<sup>1</sup> Staff direction for risk assessment, Belgian FASFC, 1000 Brussels, Belgium

<sup>2</sup> Institute for Agricultural and Fisheries Research (ILVO), 9090 Melle, Belgium

<sup>3</sup> University of Ghent, 9000 Ghent, Belgium

<sup>4</sup> Ghent University – Campus Kortrijk, 8500 Kortrijk, Belgium

<sup>5</sup> Scientific Committee, Belgian FASFC, 1000 Brussels, Belgium

\* Corresponding author. Staff Direction for Risk Assessment, DG Control Policy, FASFC, Kruidtuinlaan 55, 1000 Brussels, Belgium. Tel.: +32 (0)2 211 87 02; fax: +32 (0)2 211 87 22

E-mail address: [wendie.claeys@favv.be](mailto:wendie.claeys@favv.be)

## Abstract

Based on literature data, the composition of milk from different ruminants (cow, sheep, goat, buffalo, camel, llama, yak and deer) and equidae (horse and donkey) and of human milk were compared to examine possible nutritional differences. Additionally, the alleged health benefits attributed to some of these milks and the effect of heating are discussed.

Very generally, ruminant milk has a lower lactose content, but a higher protein (and casein), fat (with a higher share of saturated and mono-unsaturated fatty acids and a higher cholesterol level), vitamin (except for vitamin C) and mineral content compared to horse or donkey milk. Milk composition may however vary largely, not only between ruminants and non-ruminants, but also between different breeding variants of the same species and between individual animals. Consequently, a constant health promoting potential is, if present, difficult to guarantee. Moreover, differences in milk composition do not only concern the relative proportions of the milk components, but also occur at the molecular level (e.g. monomeric versus dimeric proteins, different amino acid sequence).

Pasteurization is not expected to affect the nutritional (or presumed health) benefits significantly, regardless of differences observed in thermostability between components of considered types of milk. Even though the milk composition of some animal species resembles to a great extent the composition of human milk, it is recommended to give either human milk or formula milk to babies and infants. For people suffering from milk allergy, milk other than e.g. bovine milk may offer a solution, but this greatly depends from one person to another.

## Key words

raw milk; ruminant; equidae; composition; nutrition; heat treatment

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