

***In vitro* digestion of bovine and caprine milks by human gastric enzymes – peptide profiling and antibacterial effects**

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Milk from different species varies in protein type and composition, and this may influence the digestion of the milk with formation of peptides with different biological activities. Caprine milk from individual goats contains different concentrations of caseins, because that the α_{S1} -casein content may vary from 0 g/l to 3.6 g/l depending upon the national breed. Norwegian dairy goats contain a high amount (>70%) of individuals not expressing the α_{S1} -casein, the so called “null” variant (0 g/l), due to genetic mutations a deletion in exon 12. This have very dramatic consequences on casein content, renneting and coagulation properties for cheese production. However, this may have positive health effects with regard to protein digestion of the milk. We have investigated differences in digestion profiles between raw cow and goats milk, including high and low content (“null” variant) of the α_{S1} -casein. For the *in vitro* digestion studies human gastric (HGJ) at pH 2.5 and duodenal juice (HDJ) at pH 7.5-8 were used. The protein degradation patterns and peptide profiles from the different milks were compared by using gel-electrophoresis, PAGE and IEF. Goats milk was digested more rapidly than cows milk. The results also showed large variations in the degradation pattern between cow and goats milk. The caseins were more rapidly digested than the whey proteins, especially β -lactoglobulin was more resistant to human digestion enzymes than α -lactalbumin, serum albumn, lactoferrin and immunoglobulins.

Fractions of the whey proteins after digestion with human gastric enzymes showed antibacterial activity against different *E.coli* strains and *Listeria monocytogenes*.