TITLE: EVALUATION OF THE ANTILISTERIAL ACTIVITY OF PEPTIDE EXTRACTS OBTAINED AFTER SIMULATION OF *in vitro* DIGESTION OF FERMENTED SHEEP MILK BY KEFIR GRAINS

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ABSTRACT:

The occurrence of multiresistant strains associated with antibiotic abuse reduced the clinical option in their treatment and therefore the use of natural sources has enormous potential due to its low toxicity and high specificity. Antimicrobial peptides derived from milk proteins that demonstrate a wide range of activities against pathogenic microorganisms. Among the food compounds, a large number of peptides were identified in dairy products, such as kefir. Thus, the present study aims to evaluate an antibacterial activity of peptidic extracts of sheep milk fermented by kefir grains after in vitro digestion. For this, pasteurized sheep's milk was subjected to the fermentation process using 5% kefir grains, then this product was used for the simulation of human digestion at different pHs, digestive enzymes: pepsin, pancreatin and bile salts. During the simulation aliquots were subdivided into gastric digestion and total digestion. These digested materials were ultrafiltered and peptides at a concentration of 5 mg / mL, with a mass of less than 3 KDa, were submitted to antibacterial activity against *Listeria monocytogenes* ATCC 19117, microdilution method in 96-well microplate. Using these fractions, we obtained antibacterial activity with 10.12% of inhibition when tested the gastric digestion peptides and 89.83% of inhibition when the total digestion peptides were tested on the pathogen tested. Recent studies indicate that peptides of lower fractionation (≤ 3 kDa) exhibit better antimicrobial activity, and the results of this work were superior, to those that used fractions <3 kDa of milk fermented by *Lactobacillus plantarum* isolated from cheeses presented 72.76% of activity To *L. monocytogenes*. We can conclude that at the end of the digestive process the milk fermented by kefir presented greater bioavailability of such peptides and with this showed a higher antimicrobial activity, suggesting that this food may be useful for direct consumption, development of new antilisteric agents that are used by the food and pharmaceutical industry.

Keywords: antimicrobial, fermented milk, in vitro digestion, kefir

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