

Potential of goat and sheep whey protein fraction on skin microorganisms

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Abstract:

The dairy industry effluents may represent a significant environmental impact. So, the whey produced by cheese industries can be transformed in Whey Protein Concentrates (WPC) with value added. Although, the WPCs have been applied to food products, their relevance on skin microbiota can be also an opportunity. In this study, whey protein concentrates from goat and sheep milk were produced by membrane filtration and after hydrolysis by *Cynara cardunculus* they were fractionated by nanofiltration and dried by freeze drying. They were characterized in terms of composition as well as in terms of antimicrobial and prebiotic potential upon skin pathogens or probiotic microorganisms, respectively. The fractionation allowed to generate three whey fractions with different sizes: β -lactoglobulin, whey protein peptides fraction $>3\text{kDa}$ and $<3\text{kDa}$.

In the peptide fraction $<3\text{kDa}$, the results showed higher protein content in goat sample (15.9%) when compared with sheep whey (8.7%). The antimicrobial activity of sheep and goats whey protein fraction were evaluated for *S. aureus* and the results showed to be significant for the fraction $<3\text{kDa}$. The prebiotic effects were demonstrated for *S. epidermis* using the $<3\text{kDa}$ fraction. These goat and sheep protein fractions may represent a potential benefit to the skin, which can be conveyed by incorporated textile. So, incorporation of these fraction on functional textiles, besides the value added also may contribute significantly to a sustainable economy. For example, it was possible to observe a potential antioxidant capacity and the deodorant capacity of functionalized textiles. These results demonstrate the potential for these ingredients to improve and produce functional textiles.

Biography:

Patrícia Batista, Master in Experimental Pathology at Faculty of Medicine at the University of Coimbra and completed a PhD degree in Biomedicine at Faculty of Health Sciences (University of Beira Interior).