

CP093

CHARACTERIZATION OF A CONCENTRATED SECOND CHEESE WHEY

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An emergent trend in the food industry sector is to search for added-value innovations, in particular, the production of new highly sustainable food products of high nutritional value [1]. Whey cheese “Requeijão” is obtained by heating the whey between 90 and 100 °C for 15 to 30 min, with or without the addition of 10–20% (v/v) of ovine/caprine/bovine milk. The residual deproteinized whey known as second cheese whey or “Sorelho”, which is obtained from whey cheese manufacture, contains approximately 60% (w/w) of the original whey dry matter. Deproteinized whey is a common by-product of small/medium scale cheese plants and, although it has little to no commercial value, it is produced in relatively high volumes implying a complex processing before its disposal [2]. Therefore, the objective of this work was to characterize the nutritional composition of two concentrated deproteinized wheys (sheep and goat), obtained after the treatment of deproteinized wheys by ultrafiltration/diafiltration with a 10 kDa membrane followed by freeze drying, in an attempt to provide some insights into their potential use as food ingredients. Nutritional composition was determined according to AOAC methods for protein, lactose and ash contents. Fatty acid qualitative and quantitative profiles were determined according to Pimentel et al. [3]. From the nutritional characterization, it was possible to observe that the deproteinized wheys, upon ultrafiltration, were mostly comprised of protein 77-99% (w/w) and 3.5-4.0% (w/w) mineral contents (total ash). The samples also exhibited a low lactose content (0.59-0.81 mg/mg). The fatty acid composition profile was predominantly composed of short- and medium chain fatty acids including butyric, caproic and caprylic acids, and long chain fatty acids, such as palmitoleic, rumenic and trans vaccenic acid along with low concentrations of docosapentaenoic acid and docosahexaenoic acid. Aspartic acid, glutamic acid, alanine and tyrosine were the most predominant amino acids found in the sheep concentrated deproteinized whey while in the goat concentrated deproteinized whey aspartic acid, glutamic acid, asparagine, threonine and valine were prevalent. Taking into account the nutritional profile of these concentrated deproteinized wheys, new innovative products may be sought through their incorporation in different matrices such as whey cheese.

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