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Nutritional and functional properties of sheep milk for beneficial dairy products development

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ilk production by small ruminants has grown over the years and is now in search of new consumer markets. Sheep milk an excellent source of nutrients and is mainly used for fine cheese varieties production, yogurt, and whey cheeses due to its high total solids content. However, the functional benefits of this food matrix remain unexplored by the dairy industry. Functional foods containing prebiotics and probiotics are part of a new market niche that seeks consumer recognition, satisfaction, and acceptance; they have been attracting interest from the food industry for both economic reasons and due to scientific evidence related to their health benefits. Consumers are more aware of the nutrition and quality of food they eat, increasing the demand for healthy foods. The popularity of dairy products containing probiotic bacteria or prebiotic components for these bacteria is intrinsically related to the palatability and favorable physiological effects. Some studies have been demonstrated the favorable effects of the addition of probiotic micro-organisms and/or prebiotic components in sheep dairy products, such as cheese, yogurt, ice-creams, and other dairy desserts. They concluded that this milk is a suitable food matrix for beneficial bacteria growth to reach probiotic level and addition/substitution of sugar/fat for prebiotic fibers in the sheep milk dairy products. The nutritive value of sheep milk is superior when compared to goat or cow milks, presenting higher protein content (structural conformation and the amount of casein micelles and subunits suggests low allergic sensitization), lipid (high levels of CLA responsible for anticarcinogenic and lipolytic actions), minerals (high bioavailability of calcium and phosphorus) and essential vitamins for human health. As a final remark, it is important to mention the conduction of *in vivo* tests, using different protocols, to assess the functional properties potential of such dairy foods aiming to attain a health claim.

Recent publications

- 1. Harper C (2009) The neuropathology of alcohol-related braindamage. Alcohol and Alcoholism, 44:136-140.
- 2. Balthazar C F, et al. (2017) Sheep milk: physicochemical characteristics and relevance for functional food development. CRFSFS, 16:247-262.
- 3. Giambra I J, et al. (2010) Isoelectric focusing reveals additional casein variants in German sheep breeds. Small Ruminant Res, 90:11–17.
- 4. Serafeimidou A (2012) Chemical characteristics fatty acid composition and conjugated linoleic acid (CLA) content of traditional Greek yogurts. Food Chem 134:1839-1846.
- 5. Tamime A Y (2011) Popular ovine and caprine fermented milks. Small Ruminant Res 101:2-16.

Biography

Celso F Balthazar is a PhD student of Universidade Federal Fluminense, Brazil. At the moment, he is at Università degli Studi di Foggia (Italy), as an external PhD student. His thesis aims on elaboration of sheep milk dairy products with functional appeal by the addition of prebiotics and probiotics. He has experience in sheep/ goat production, milk technology and derivatives, in the field of Food Science and Technology and inspection of products of animal origin, focusing on technology of milk and derivatives, quality, analytical and nutritional analyzes, as well *in vitro* simulated gastrointestinal digestion.

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