

Recent Advances in the Valorization of Goat Milk: Nutritional Properties and Production Sustainability

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Abstract : Goat dairy products are gaining popularity worldwide. In developing countries, but also in many marginal regions of the Mediterranean area, goats represent a great part of the economy and ensure food security. In fact, these small ruminants are able to convert efficiently poor weedy plants and small trees into traditional products of high nutritional quality, showing great resilience to different climatic and environmental conditions. In developed countries, goat milk is appreciated for the presence of health-promoting compounds, bioactive compounds such as conjugated linoleic acids, oligosaccharides, sphingolipids and polyamines. This paper focuses on the recent advances in literature on the nutritional properties of goat milk and on innovative techniques to improve its quality as to become a promising functional food. The environmental sustainability of different methodologies of production has also been examined. Goat milk is valued today as a food of high nutritional value and functional properties as well as small environmental footprint. It is widely consumed in many countries due to high nutritional value, lower allergenic potential, and better digestibility when compared to bovine milk, that makes this product suitable for infants, elderly or sensitive patients. The main differences in chemical composition between a cow and goat milk rely on fat globules that in goat milk are smaller and in fatty acids that present a smaller chain length, while protein, fat, and lactose concentration are comparable. Milk nutritional properties have demonstrated to be strongly influenced by animal diet, genotype, and welfare, but also by season and production systems. Furthermore, there is a growing interest in the dairy industry in goat milk for its relatively high concentration of prebiotics and a good amount of probiotics, which have recently gained importance for their therapeutic potential. Therefore, goat milk is studied as a promising matrix to develop innovative functional foods. In addition to the economic and nutritional value, goat milk is considered a sustainable product for its small environmental footprint, as they require relatively little water and land, and less medical treatments, compared to cow, these characteristics make its production naturally vocated to organic farming. Organic goat milk production has becoming more and more interesting both for farmers and consumers as it can answer to several concerns like environment protection, animal welfare and economical sustainment of rural populations living in marginal lands. These evidences make goat milk an ancient food with novel properties and advantages to be valorized and exploited.

Keywords : goat milk, nutritional quality, bioactive compounds, sustainable production, animal welfare

Conference Title : ICSFSQMS 2019 : International Conference on Sustainable Food Safety, Quality and Management System

Conference Location : Copenhagen, Denmark

Conference Dates : June 11-12, 2019