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Comforts in Quality and Production of Goat Milk

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Abstract

Increased demand of goat milk and milk products was due to potential human health benefits. The small size of fat globules, higher digestibility and less allergic were the reasons of preferred goat milk feeding in infants over cow milk. Grazing has been the preferred system of goat production, which increases polyunsaturated and conjugated linoleic acid (CLA) contents of the goat milk. Browsing of polyphenolic rich plant in goats has increased antioxidant activity and contents of flavanoids, gallic acids and diterpens in goat milk. Goat milk fat has a ratio of 5:1 between omega-6 and omega-3 fatty acids, which is closer to the ratio recommended for the prevention of cardiovascular diseases in human. Goat milk has the property of minimum changes in fat (fatty acids profile and CLA isomers), protein and other micronutrient on processing with higher-pressure treatments. The potential therapeutic benefits of goat milk and milk products consumptions such as anti-carcinogenic, anti-viral properties and the prevention of cardiovascular diseases have increased growth of goat milk in human intake.

Keywords: Conjugated linoleic acid; Functionality; Goat; Milk quality

Description

Goat production has constituted an important share of the national economy in Indian-sub-continent and in many Mediterranean, the Middle East and European. The world population of goats increased to a double since 1991, while the numbers of sheep decreased by 7%, and population of cattle grew by 9%. The growth in the consumption of goat milk and milk products is due to their beneficial effects on human health. Goat milk is an excellent source of food and has an acceptable, attractive odour and taste, and consumed as an alternate of cow milk because it is less allergenic with higher digestibility. New methods have developed for increased milk production and cheese quality. The introduction of plant by-products with secondary metabolites in the diet of the goats developed new pleasant sensors for the quality control of new value added products, which have increased preferences of goat milk consumption [1]. The small size of fat globules and higher digestibility of goat milk has been the health benefits in infants, and goat milk has been the preferred food source over the cow milk and has been better than the mother's milk [2]. Goat milk quality was established by its potential to tolerate different technological treatments in order to obtain a product with the level of health benefits, sensory attributes, safety and nutritive value. The content of protein and fat, somatic cell counts, bacteriology, immunoglobulins, inhibitors, freezing point and lipolysis have been other quality attributes of milk. Goat milk quality can be linked with to the major physico-chemical component of fat, protein and lactose, and to the micro compounds minerals, vitamins, cholesterols and terpens. Protein and fat contents have been important technological attributes of goat milk quality. The k-casein polymorphism have the interactions with the changes of αs1-casein, and animals with variants in αs1-casein produced higher protein and fat contents. The high casein content is related with higher buffering properties of goat milk. The control of pathogens determines the quality of goat milk and the somatic cell counts gave an indirect indication of the presence of pathogens in milk and established the maximum somatic cell numbers related with the presence of minor pathogens in milk. Increase of somatic cell counts in goat milk may cause biochemical modifications and losses of daily milk production by 15-20 per cent per goat per day.

Recent developments in goat milk production were focused the control of contaminants, new supplements, sensory enhancement in milk and milk products [3], and increase in functionality of milk and milk products [4], all have common aims of improved milk productivity and quality of milk and milk products for increased their consumptions. Dietary modification have been employed in goat feeding in promoting the productivity and quality of milk. Feeding of goats with polyphenolic rich plant has seen to improve the quality of milk through increased antioxidant activity with potential therapeutic benefits of anti-carcinogenic and anti-viral properties. Inclusion of leaves of aromatic plant in feeding have increased flavanoids, gallic acids, diterpens and polyunsaturated fatty acids content of goat milk [5]. Administration of source of thyme and other poly phenols in goat diets have increased milk production, dry matter and lactose content. Several plant products and fat sources have modified the fatty acid profile of goat milk with higher contents of unsaturated fatty acids due to their antioxidant properties by the phenolic constituents and the presence of high levels of linoleic acid in oil contents. Milk and dairy products are source of lipid intake in human diet, decrease in unsaturated fatty acids and increase in omega-3-long chain polyunsaturated fatty acids, conjugated linoleic acid (CLA) have recommended due to their potential preventive role in cardiovascular disease and anti-carcinogenic properties [2]. Goat milk fat has a ratio of 5:1 between omega-6 and omega-3 fatty acids, whereas a ratio less than 4:1 or equal have recommended for the prevention of cardiovascular diseases in human. The modifications of milk fatty acid profile for improving nutritional quality of goat milk, numerous alterations of the basal diet were explored. The different lipid substrates were introduced in goat diets as the most appropriate procedure for modifying the milk fatty acid profile. Inclusion of less than 4 percent oil in goat diets have increased the polyunsaturated fatty acid content of milk without any negative effect on animal. The manipulation of animal feeding is a healthier practice than artificially adding unsaturated oils to milk. Since CLA consumption has properties of body fat decrease by inhibiting lipogenesis and stimulating lypolysis, therefore, raising goats on pasture is the best way to increase milk CLA content. However, introduction of diets rich in CLA cis-9, trans-11 and trans-10, cis 12 18:2 are other strategies of increasing milk CLA levels

of goat milk [6]. Another property of goat milk is the minimum changes of fatty acids profile and CLA isomers on pasteurization and homogenization with higher-pressure treatments.

The health promoting properties of goat milk have attracted consumers, which increased the consumption of goat milk. Increased demand of goat milk was driven by the small size of fat globules, less allergic, higher digestibility, more CLAs, and ratio of omega-6 and omega-3 fatty acids more close of recommended ratio for the prevention of cardiovascular diseases in human.

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