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Abstract

The Use of Unconventional Feedings from the Industrial Waste of Oilseeds in Dairy Goat Nutrition: Effects on the Nutritional Quality of Milk and Dairy Products and on Human Health †

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Abstract: Background and objectives: Industrial oilseed by-products (Cynara cardunculus and Camelina sativa) (CACD) are rich in bioactive compounds. In recent years, the use of these by-products as unconventional feed for dairy goat nutrition has been hypothesized. However, data on the effects of these by-products on the nutritional quality of milk and on human health are limited. Our aim was to evaluate the potential effect of consuming yogurt made from goat milk from goats fed with unconventional ingredients derived from the industrial residues of CACD on adult human health. Methods: In this randomized, crossover clinical trial, 20 clinically healthy adults (14F; mean age 37.7 ± 14.2 years) were randomly assigned into two groups to take one yogurt made from goat milk from goats fed with CACD or regular goat yogurt (C) daily for 1 month in each phase. Anthropometric, body composition and blood samples were collected from each subject at the beginning and end of the intervention phase. Results: After consumption of CACD yogurt, a reduction in the percentage and kg of fat mass (−1.5%, $p = 0.035$; −0.9 kg, $p = 0.042$, respectively) and an increase in the percentage and kg of fat-free mass (+1.5%, $p = 0.035$; +0.9 kg, $p = 0.023$, respectively) were evident. As for the blood parameters, a decrease in calcium (−0.3 mg/dL; $p = 0.028$) and sodium levels (−1.6 mEq/L; $p = 0.001$) after taking CACD yogurt, with significant differences between the two groups in sodium levels ($p = 0.045$), was reported. Analyzing the differences in terms of sex, HDL showed an opposite trend in terms of the variation ($p = 0.043$) between men (−7.7 mg/dL) and women (+0.7 mg/dL) after taking CACD yogurt. Regarding inflammatory parameters, after CACD yogurt consumption, subjects showed an increased but not significant trend concerning the levels of IL-1ra (+38.5 pg/mL), especially in women (+60.4 pg/mL) compared to men. In addition, a similar non-significant trend of reduced IL-2 levels (−0.3 pg/mL) was also observed, especially in men (−0.6 pg/mL). Discussion: The use of unconventional feed obtained from the by-products of industrial oilseed waste for dairy goat nutrition reported possible beneficial effects on human health, suggesting an amelioration in body composition and an improved trend in terms of inflammatory profile.

Keywords: yogurt; clinical trial

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