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THERAPEUTIC EFFECTS OF GOAT MILK

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Introduction. Goat milk is very nutritious and has numerous health benefits. It can decrease concentration of cholesterol, enhance immune system, prevents overweight and diabetes type II, and it is used as an alternative for people who are allergic or intolerant to cow's milk. The aim of this work was to determine the effect of breeding on goat milk composition, and its therapeutic characteristics with emphasis on milk fatty acids profile.

Material and Methods. Milk samples were taken from two group of herds from same goat breed. First grazing on pastures at highland and second on mountain regions in Macedonia (n=40). Analysis of chemical composition of milk was performed according standard procedures. Fatty acids profile was analysed by gas chromatography, using Hewlett Packard 5890 series II gas chromatograph with flame ionization detector, and capillary column HP88 (60m x 0.250mm x 0.20µm). Fatty acids were analyzed as methyl esters (FAMES), and identified by comparison with methyl esters of standards (Sigma-Aldrich).

Results and Discussion. According obtained results significant differences were found for: protein ($p=0,0019$), lactose ($p=0,0001$), total solids ($p=0,0020$), and $p=0,0010$ for fatty acids (FAs). Differences in fat content were not significant. The most abundant FAs in milk from both groups goats were stearic (C16:0), oleic (C18:1 $n-9$, myristic (C14:0) and capric acid (C10:0). The average content of saturated FAs was 74,52% and 73,05% in milk from both groups, respectively. Significantly higher amounts of saturated FAs caprylic (C8:0), capric (C10:0) and lauric acid (C12:0) were found in milk from highland herds compared with milk from mountain herds. The average content of monounsaturated FAs was 20,49% and 22,32%, polyunsaturated FAs 3,73% and 3,24% in the milk from both groups goats, respectively. Among the monounsaturated FAs, palmitoleic acid (C16:1) showed a significantly higher concentration in milk from mountain than in milk from highland herds. The milk from mountain herds had significantly high amount of polyunsaturated linoleic (C18:2, $n-6$) and less α -linolenic acid (C18:3, $n-3$) compared with milk from highland herds.

Conclusions: Analysis of factors affecting milk fatty acids composition is very important for understanding of physiological and biochemical characteristics of goat milk and improvement of its therapeutic effects. The quality of food is to a considerable extent considered by its contribution to the maintenance or improvement of the consumer's health.

Keywords: goat milk, therapeutic effects, fatty acids