EFFECT OF PASTURE AND SEASON ON THE VARIATION OF VITAMIN A, E AND C IN DONKEYS' MILK DURING LACTATION

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Abstract

Donkeys' milk is attracting growing interest in human nutrition because of presumed health benefits. While milk composition is influenced by a variety of factors, such as genetics, health, environment, etc., it is supposed that the pasture feeding and lactation stage remains a key factor that lead to a favorable nutritional composition of milk. The aim of proposed study was to examine the effect of pasture and season on the variation in the retinol (vitamin A), alpha-tocopherol (vitamin E) and ascorbic acid (vitamin C) contents in the donkeys' milk during lactation period.

Ten donkeys' were grazing *ad libitum* pasture during the period of seven months (April-October 2015), with addition of fresh clover during June and July of the same year. Vitamin C content was determined by enzymatic method (commercial Megazyme test kit). Additionally, vitamin A and E contents were evaluated by High-performance liquid chromatography (HPLC) (Agilent 1200 system). Statistical analysis were explored using analyses of variance (ANOVA) and Duncan's multiple range test using the statistical package program STATISTICA 13.2, while results were presented as mean values ± standard deviation. A significance level of $p < 0.05$ was used.

The highest vitamin C content (30.15 µg/ml) in milk samples was recorded in Jun, whereas the highest vitamin A (2.26 µg/ml) and vitamin E (4.90 µg/ml) contents were recorded in Jul and August, respectively. Observed values of vitamin A and vitamin E were significantly different ($P > 0.05$) during diet on pasture with adder fresh clover compared to vitamin A and vitamin E contents in first months of grazing. After the August, it was noticed the decreased concentration of vitamins in donkey milk samples.

Based on previously shown results, it could be concluded that the higher value of vitamins content is obtained in first 150 days post parturition. The vitamin contents of milk were significantly depended on feeding strategies and lactation.

Key words: *Donkeys' milk, Vitamin A, E and C, Pasture, Season.*