Book of Abstracts of the 71st Annual Meeting of the European Federation of Animal Science

The effect of urea addition on micro mineral profile of grape pomace silage

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Last experiments with farm animals showed possibility to use grape by-products as a source of nutrients in animal nutrition, however it is necessary to find the right and economical method for nutrient preservation in grape pomace because of high water content after the wine production in pomace that leads to rapid spoilage. Thus, the main goal of this research was to find the effect of urea addition on micro mineral profile of Pinot Gris (*Vitis vinifera* L.) grape pomace silages. Experiment in the Laboratory of Quality and Nutritive Value was realised. First, fresh matter with dry matter content 45% in laboratory conditions with stabile temperature 22 °C into silos mini bags was ensiled. Control variant was ensiled without addition of urea and experimental variant with urea addition (0.2 kg per 100 kg of fresh matter). After the 35 days of storage in silage the dry matter (gravimetrically) and ash content (sample burning in Muffle furnance at the temperature 550 °C) were determined. Then, for the determination of micro elements chloride extract (ash solution in 3M HCl) from the ash was prepared. In the ash extract the content of micro minerals (Fe, Cu, Mn, Zn) using ContrAA 700 spectrophotometrically by atomic adsorption was determined. The descriptive statistics and differences between means were calculated using IBM SPSS v. 20.0 (Independent samples T-test). In general, the highest concentrations from micro minerals had Fe. However, in the experimental variant (118.48±0.39 mg/kg), higher concentrations of Fe in comparison with control variant (113.57±6.94 mg/kg) were found. On the other side, in control variant higher content of Zn (26.06±3.71 mg/kg) in comparison with experimental variant (25.02±2.18 mg/kg) was observed. Then, the Cu (17.95±0.68 vs 19.48±2.17 mg/kg) and Mn (14.88±0.39 vs 15.10±0.33 mg/kg) content was higher in the experimental variant compared to control variant. Results show that the addition of urea into grape pomace silage does not affect the content of micro elements. This work was supported by the Slovak Research and Development Agency under the contract No. APVV-16-0170.

Changes in the fatty acid profile of milk from ewes fed cauliflower for four weeks

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Brassicas are considered a source of forage in ruminant feeding, and their possible effect on milk quality deserves research. During processing and commercialisation of cauliflower for human consumption, part of the plant biomass becomes a by-product. The aim of this study was to evaluate the changes in the fatty acid profile of ewes' milk due to the use of cauliflower in their diet. Nine Assaf ewes in the middle phase of lactation (2.07±0.20 l) were fed *ad libitum* on a mixture of 1:1 forage:concentrate plus 1.5 kg of cauliflower for 6 weeks (3 for adaptation and 3 for sampling). The animals were milked once daily and 50 ml-milk from each ewe were sampled weekly from the first to the last day of the sampling period (four sampling days). Samples were lyophilised and 0.15 g of lyophylised milk was subjected to transesterification reaction and the fatty acids (FA) were analysed by gas chromatography coupled with mass spectrometry. Detection was performed using the spectral information and standards of FA methyl esters. FA concentrations were expressed as area percentage of the sum of areas of the FA methyl esters identified. Data were analysed by repeated measures ANOVA with time as independent variable and ewe as experimental unit. The main FA detected (accounting for 90% of the total area) in order of abundance were palmitic acid (C16:0), oleic acid (C18:1), myristic acid (C14:0), capric acid (C10:0), stearic acid (C18:0), lauric acid (C12:0), linoleic acid (C18:2), caprylic acid (C8:0), vaccenic acid (C18:1t), pentadecylic acid (C15:0) and linolenic acid (C18:3). C18:1t and C18:3 showed a significant ($P<0.05$) linear increase during the sampling period. The levels at the end of the period were 30% higher than those at the beginning. In contrast, the levels of C18:1 significantly decreased ($P<0.05$). The use of cauliflower in the diet would increase the Ω-6 content in ewes' milk according to a linear pattern.