Contribution ID: **311**   Type: **Verbal**

Epithermal neutron activation analysis of forages from permanent grasslands of North-Eastern Romania

Friday, 16 May 2014 11:45 (15 minutes)

The health and performance of grazing ruminants are dependent on the availability of essential mineral elements from pastures but the pastures often fail to supply all needed mineral elements in the quantity adequate for livestock grazing.

Species-rich grasslands with Nardus stricta are one of the important environments for animal production not only in Romania but also in other European regions, too. Various studies regarding the biodiversity and the influence of fertilizers on the biodiversity value of the mountain grasslands in the Romanian Carpathians were performed. Nevertheless, a lack of information regarding the natural input of essential macro and trace elements needed in the special metabolic activities exists.

The aim of this study was to characterize the quality of permanent grasslands in a potential area of ecological agricultural production from Dorna area (North-Eastern Romania) by evaluating the content of essential and potential pollutant elements in order to optimize nutritional requirements of ruminants. This investigation is a part of a larger project on the assessment of the influence of organic fertilization on the total polyphenols and tannins content in forages obtained from four natural permanent pastures with predominant Nardus stricta and Festuca rubra L. vegetation. 83 plant samples were dried at room temperature and ground to obtain a homogeneous matrix.

A total of 29 elements were determined by epithermal instrumental neutron activation analysis at the IBR-2 reactor of FLNP JINR: Na, Mg, Al, Cl, K, Ca, Sc, V, Cr, Mn, Ni, Fe, Co, Zn, Se, As, Br, Sr, Rb, Mo, Sb, Ba, Cs, La, Sm, Hf, Ta, Th, and U.

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Session Classification: Nuclear Analytical Methods 5

Track Classification: Nuclear Analytical Methods