

This paper presents the application of combined extraction chromatographic and scintillation media in a solid support for on-line and off-line monitoring of radiostrontium in aqueous solutions. The novel media is a combination of selective extractant and scintillation materials resulting in a dual-purpose (extraction and detection) media. This extractive scintillator media has been realized as (1) a mixture of extraction chromatographic resin and granular scintillator, (2) extraction chromatographic material coated on the surface of a scintillating glass and (3) inert polystyrene chromatographic resin impregnated with a proprietary extractant and organic fluors. PPO and DM-POPOP. The extractive scintillator media has been evaluated for on-line and off-line applications. For on-line measurements, the extractive scintillator media is used in conjunction with a flow-cell scintillation detection system. For off-line measurements, the media is used in the same manner as the non-scintillating version, but rather than eluting the activity from the column prior to counting, the scintillating extraction column can be placed in a scintillation vial and counted without the introduction of liquid scintillation cocktail. The absolute detection efficiency for  $^{90}\text{Sr}$  beta particles sorbed to the strontium-selective extractive scintillator media was measured to be approximately 30%. Characterization of the detection efficiency, minimum detectable concentration, selectivity, loading capacity, capacity factor and regeneration capability of the extractive scintillator media will be presented.

247 APPLICATION OF NEUTRON ACTIVATION ANALYSIS TO EVALUATE THE CLINICAL STATUS OF EQUINES BY MEANS OF Cu, Fe, Mn AND Zn DETERMINATIONS IN THEIR HAIR. M. J. A. Armelin<sup>1</sup>, R. L. Ávila<sup>1</sup>, R. M. Piasentin<sup>1</sup> and M. Saiki<sup>1\*</sup>. <sup>1</sup>Instituto de Pesquisas Energéticas e Nucleares - IPEN-CNEN/SP, Supervisão de Radioquímica, Caixa Postal 11049, CEP 05422-970, São Paulo-SP, BRASIL.

Micro or trace minerals are involved in nerve transmission and in the production of enzymes and hormones. Veterinarians use the essential mineral concentrations present in the animal hair as an indicator of its health status. In the present work, ten equines, belonging to Military Police of São Paulo State, were assigned randomly for experiment. Samples of hair collected from the neck of these animals were cut into approximately 3 mm pieces and then, washed twice with a 2% Triton X100 solution, three times with de-ionized and distilled water, and finally with acetone. Also these samples were dried at 45°C for 30 hours for analysis. Instrumental Neutron Activation Analysis (INAA) followed by gamma ray spectrometry was applied to estimate the concentrations of Cu, Fe, Mn and Zn in these samples. Comparison of the results obtained in these analyses with reference values indicated Zn deficiency in the equines. Fe is in the minimum limit and the elements Cu and Mn are within the normal range.

248 EFFECTS OF THE USE OF DIFFERENT MINERAL COMPOSITION FERTILIZERS ON THE ABSORPTION OF Ca, Cu, K, Mg, Mn, Na AND V, IN TWO CULTIVARS OF PIGEONPEA (*Cajanus cajan*, Millsp), R. M. Piasentin<sup>1</sup>, M. J. A. Armelin<sup>1</sup>, O. Primavesi<sup>2</sup> and M. Saiki<sup>1\*</sup>. <sup>1</sup>Instituto de Pesquisas Energéticas e Nucleares - IPEN-CNEN/SP, Supervisão de Radioquímica, Caixa Postal 11049, CEP 05422-970, São Paulo-SP, Brasil. <sup>2</sup>Southeast Cattle Research Center - CPPSE/EMBRAPA, Caixa Postal 339, CEP 13560-970, São Carlos-SP, BRASIL.

Pastures constitute the main component of ruminant diet, particularly in tropical regions. In the dry season, a decline in the nutritive value of this food occurs, which results in decrease of proteins and some macro and micro minerals. Providing high quality forrage to the animals could be a way to compensate the deficiency in the cattle's diet. Pigeonpea (*Cajanus cajan*, Millsp), an easy cultivation legume species and adapted to Brazilian conditions, has been used as an economic source of proteins for ruminant supplemental feeding during the drought period. However, data about the composition of microelements and trace elements of this forrage species are scarce. This paper had the purpose of verifying the influence of the application of different doses of inorganic fertilizers in the absorption of Ca, Cu, K, Mg, Mn, Na and V, by two pigeonpea cultivars, called G3 (EPAMIG 1822) and G36 (EPAMIG 1679), compared to the absorption of each cultivar without any manuring. The neutron activation analysis method was applied to determine the concentrations of these elements in samples of whole leaves, which were harvested in two different times. Cultivar G3 showed to be more susceptible to the treatment. Cu absorption was not changed in any condition, while all the others elements had either positive or negative reaction, depending on the cultivar, fertilizer and harvesting time. Independent on the use of fertilizer, Mn and V absorption was significantly lower by older plants.

249 DIGITAL PULSE PROCESSING-BASED GAMMA-RAY SPECTROSCOPY AND NEUTRON ACTIVATION ANALYSIS, W.D. James\* and M. R. Raulerson, Center for Chemical Characterization and Analysis, Texas A&M University, College Station, Texas 77843-3144, USA.

Digital signal processors are now available commercially for incorporation into high resolution gamma-ray