P-605 **Simultaneous Analysis of Main Fatty Acids of CLA Precursors in Forage by Capillary Zone Electrophoresis.** Renata de Jesus Coelho Castro[1], Fausto de Souza Sobrinho[2], Marco Antonio Sundfeld Gama[2], Patrícia Mendonca de Castro Barra[1], Rosemar Antoniassi[3], Marcone Augusto Leal de Oliveira[1], [1]Federal University of Juiz de For a, Juiz de Fora, BRAZIL; [2]Embrapa Dairy Cattle, Juiz de Fora, BRAZIL; [3]Embrapa Agribusiness and Food, Rio de Janeiro, BRAZIL

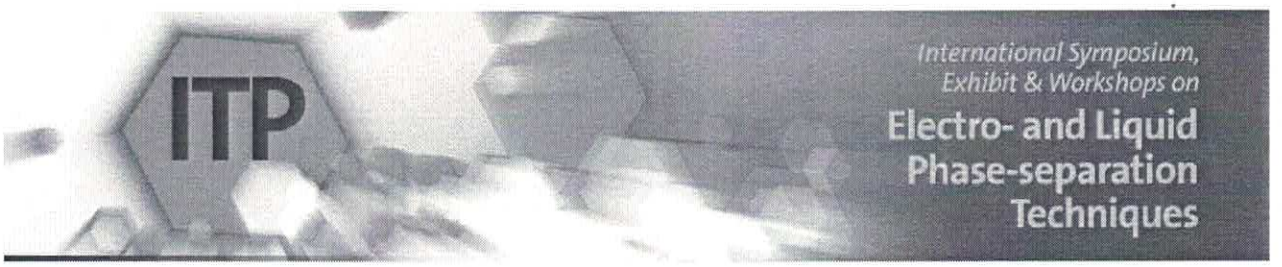
Forages are the major components of ruminant diets, being a source of energy and nutrients for milk and meat production. Among the fatty acids found in forages, two (C18:2 n-6 and C18:3 n-3) have received particular attention due to their roles as precursors for the synthesis of conjugated linoleic acid (CLA), a class of health enhancing compounds predominantly found in dairy products. The objective of this study was to develop an alternative method for quantification of C18:2 and C18:3 in forages through the capillary electrophoresis (CE) technique, using Brachiaria ruzizienses as the reference forage. The analytical procedure involved CE with indirect detection zone in the UV at 224 nm, capillary external coating of Teflon and analysis time around 10 minutes. A rotational central composite design (star design) with triplicate at the central point was used to optimize the composition of the electrolyte system in order to separate the C16:0/C18:2 pair. The following electrolyte composition was obtained: 15.0 mmol L-1 NaH2PO4/Na2HPO4 buffer (pH~6,8), 8.0 mmol L-1 Brij 35, 4.0 mmol L-1 SDBS, 1.5% v/v n-octanol and 43,5% v/v ACN. Additionally, three methods of lipid extraction were tested: 1. Hara & Radin, 2. Micro Folch and 3. Bligh &Dyer; the best results were achieved by using the method of Hara and Radin. After optimizing the electrolyte system and choosing the lipid extraction method, two calibration curves were made using different concentrations of selected fatty acids and C13:0 as the internal standard. After checking the homoscedasticity behavior and no occurrence of lack of fit of the models, a response factor (RF) was calculated and applied in the quantification of selected fatty acids in the forage samples. The optimized CZE method was then compared to gas chromatography (the AOCS official method for fatty acid analysis) through the paired t-test. There was no difference between methods within a 95% confidence interval (p-value = 0.937). Our results indicate that the optimized CE method proposed herein can be used to quantify the most abundant fatty acids in forage samples. This alternative method has some advantages over the traditional GC method: less time-consuming, no derivatization step or specific separation columns required, and lower analytical cost.

P-606 **Simultaneous Determination of Seven Hydrophilic Bioactive Compounds in Polygoni Multiflori Radix by Short End Injection Micellar Electrokinetic Chromatography.** Kameng Lao, Xiao-jia Chen, Jing Zhao, Shao-ping Li, State Key Laboratory of Quality Research in Chinese Medicine, and Institute of Chinese Medical Sciences, University of Macau, MACAU

Pressurized liquid extraction and short-end injection micellar electrokinetic chromatographic methods were developed for simultaneous determination of seven water soluble components including one alkaloid (hypaphorine), one stilbene (2,3,5,4'-tetrahydroxystilbene 2-O-β-D-glucoside), five polyphenols (proanthocyanidin B1, proanthocyanidin B2, catechin, epicatechin, gallic acid) in water extract of Polygoni Multiflori Radix. The influence of neutral additives and relevant parameters such as pH, concentration of phosphate, SDS and HP-β-CD, capillary temperature and applied voltage were studied. Optimum separation was obtained within 14 min by using 50 mM phosphate buffer containing 90 mM SDS and 2% (m/v) HP-β-CD (pH=2.5) at 15 kV and 20 oC. All calibration curves showed good linearity (r2>0.9978) within test ranges. The LOD and LOQ were lower than 2.7 μg/mL and 5.5 μg/mL, respectively. The RSDs for intra- and inter-day of seven analytes were less than 3.2% and 4.6%, and the recoveries were 97.0%-104.2%. The validated method was successfully applied to quantitative analysis of seven investigated compounds in Polygoni Multiflori Radix samples collected from different regions of China, which is helpful for its quality control.

P-607 **Study of the Orthogonal Chromatographic Systems Applied to the Flavonoid Glycosides Analysis.** Alessandra V. Jager[1], Monica R. Mazalli[1], Marina F. M. Tavares[2], Fernando G. Tonin[1], [1]University of Sao Paulo, Faculty of Animal Science and Food Engineering, Sao Paulo, BRAZIL; [2]University of Sao Paulo, Institute of Chemistry, Sao Paulo, BRAZIL

Great attention has been paid to natural substances with antioxidant activity due to increasing incidence of serious pathologies such as cancer, cardiovascular diseases and inflammation, which are in part attributed to harmful effects of free radicals. Flavonoids are widespread naturally occurring antioxidants present in vegetable crops such as herbs, fruits, vegetables, grains, seeds and derived foods such as juices, wines, oils, etc. Due to the immense structural diversity, the analysis of this class of secondary metabolites constitutes a real analytical challenge. In this context, the development of chromatographic systems with different retention behavior can contribute to solve problems related to selectivity, thus contributing to the development of selective methods applicable in quality control of products and foods or even in fundamental studies on the secondary vegetable metabolism. In this work, the retention of 15 flavonoid glycosides in three different stationary phases, C18, PFP and ZIC-HILIC was evaluated. The retention data were obtained with aqueous mobile phase modified with MeOH, ACN, THF and their mixtures, maintaining the solvent strength of diverse mobile phases approximately constant. The biggest difference in behavior was observed for ZIC-HILIC column regardless the mobile phase utilized, and the compounds in this column showed a pronounced retention even with a large amount of solvent,



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