FCF093-2017

EVALUATION OF PULMONARY LESIONS IN ACUTE RESPIRATORY DISTRESS SYNDROME BY SINGLE PHOTON EMISSION COMPUTED TOMOGRAPHY (SPECT).

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Introduction and Objectives: Malaria is an infectious parasitic disease considered a major public health problem. Infections by Plasmodium sp. could cause a severe malaria with respiratory complications that result in the development of acute respiratory distress syndrome (ARDS). For this reason, it is important to standardize a new methodology for the identification of early lung lesions using single photon emission computed tomography (SPECT). This method allows the observation of biochemical and physiological processes as well as organ volume in a three-dimensional distribution. The aim of the present study was to evaluate early identification of pulmonary lesions in the experimental model of malaria.
Material and Methods: The study was approved by the Ethical Committee (protocol 05/2017) of the Institute of Biomedical Sciences (ICB-USP). Male mice of the non-infected DBA/2 lineage (6 mice) were used, after infection with Plasmodium berghei ANKA the animals developed two phenotypes, ARDS (9 mice) and hyperparasitemia (10 mice). The images acquisition was performed on the positron emission tomography equipment (Albira micro PET-SPECT-CT) using the software Albira Suite 5.0, on the 7th day of infection (7dpi).
Results and Conclusions: Animals with ARDS at 7dpi presented a decrease 25% and 60% in the percentage of lung volume in cm3 compared to animals with hyperparasitemia (HP) or non-infected controls (ARDS vs. HP $p < 0.01$; ARDS vs Control $p < 0.001$). The SPECT technique allowed to diagnose precocious lung lesions in the malaria-associated ARDS model.
Financing: FAPESP; CNPQ.

FCF094-2017

APPLICATION OF MULTIVARIATE ANALYSIS TO SEPARATE SOUTH AMERICAN WINES BASED ON THEIR CHEMICAL PROFILE

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Introduction and Objectives: Many chemical compounds are involved in the sensory characterization of wines, including phenolics, mineral elements and volatile compounds. Although the wine chemical profile changes according to several factors, it was hypothesized that there is a group of compounds that allows to identify the wine according to its region of production and variety. However, the identification of these key compounds has been considered a challenge due to the high complexity of the wine matrix. Thus, the objective of this study was to apply liquid and gas chromatography coupled with mass detection associated to multivariate analysis to identify the phenolic, voc and svoc compounds that could compose the nucleus of some South American red wines categories.
Material and Methods: Eighty three representative red wines were analyzed
Results and Conclusions: "Chilean Carménère (CC)" and "Argentinean Malbec (AM)", showed better separation of the other wines, while "Uruguaian Tannat" mixed with some AM and "Brazilian Merlot" mixed with some CC. About 40 compounds influenced the wines separation. The voc compounds, methyltartronic acid, mimethyl Ether,propanoic acid, 2 Heptanol and butanedioic acid, were responsible for wines separation. The chemical formula of 40 svoc that promoted the group separation was identified. In addition, 9 phenolic compounds and 4 anthocyanins also contributed to group the wines. These compounds can be applied to typify South American red wines according the combination of varietal and origin, and be useful for further proposals of Controlled Denomination of Origin.
Financing: