POSTER PRESENTATION (P H44)

Phylogenetic and inorganic profile of Mediterranean mycorrhizal *Amanita ponderosa* mushrooms: a data mining approach

C Salvador[1,2], MR Martins[1,3], H Vicente[1,2], J Neves[4], JM Arteiro[1,2], AT Caldeira[1,2]

[1] Chemistry Department, University of Évora, 7000 - 671 Évora, Portugal; [2] CQE, University of Évora, 7000 - 671 Évora, Portugal; [3] ICAAM, University of Évora, 7002 - 554 Évora Portugal; [4] Informatics Department, University of Minho, Braga, Portugal

Amanita ponderosa are wild mushroom eatable, growing spontaneously in some Mediterranean microclimates, namely in Alentejo and Andaluzia, in the Iberian Peninsula. The nutritional values of these fungi make them highly exportable. Due to the wide diversity of mushrooms in nature, it is essential to differentiate and to identify the various edible species. Mushrooms can accumulate high concentrations of some elements, namely toxic metals, because the symbiotic relation between these macrofungi and some plants in its habitats.

The aim of this study is to find inorganic and molecular markers that allow to characterize the wild *A. ponderosa* strains collected from different geographical locations in the Iberian Peninsula. Molecular approach using the microsatellite primer M13-PCR allowed to distinguish the mushrooms at specie level and to differentiate the A. ponderosa strains according to their location.

Trace metals concentrations are considerably lower, acceptable to human consumption at nutritional and low toxic levels. Data mining tools were used in order to correlate inorganic and molecular results. *A. ponderosa* strains showed different inorganic composition according to their habitat. It was developed a segmentation model based on the molecular analysis, which allow relating the clusters obtained with the geographical site of sampling. There were also developed explanatory models of the segmentation, using decision trees, by following two different strategies. One of them based on the bands of DNA and, the other one, based on the mineral composition. The results show that it may be possible to relate the molecular and inorganic data. The present findings are wide potential application and both health and economical benefits arise from this study.