

A DATA MINING APPROACH TO CHARACTERIZE *AMANITA PONDEROSA* MUSHROOMS USING INORGANIC PROFILE AND M13-PCR MOLECULAR DATA

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ABSTRACT

Wild eatable mushrooms *Amanita ponderosa* are very appreciated in gastronomy, showing high export potential. This specie grows spontaneously in some microclimates, namely in the southwest of the Iberian Peninsula.

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. 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.