

Study on the ecology and distributional patterns of the epigeous *Gasteromycetes* in Parque de Patureza de Poudar (Alentejo, Portugal)

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I. Objectives

The main goal of this study was to evaluate the influence of several environmental and antropic parameters on productivity, diversity and distribution patterns of the *Gasteromycetes*, of Parque de Natureza de Noudar (Alentejo, Portugal). For that purpose, the presence/productivity of *Gasteromycetes* were evaluated in different biotopes – mostly holm oak stands with and without shrubs (*montado*), pastures and grasslands, and in a minor scale, some cork oak stands, shrub lands and stream margins vegetation – since November 2006 to April 2007. Environmental

parameters of the study area (climate, vegetation and soil) and species productivity were analyzed using a Principal Components Analysis (PCA). Digital potential distribution maps were generated in order to help management actions that contribute to identify and preserve areas of special mycological interest on the Parque de Natureza de Noudar.

II. Material and Methods

The experimental design consisted on a stratified sampling procedure, based in the total area of each biotope and the maximum sampling effort. Therefore, 45 circular plots (250 m² each) were distributed randomly and proportionally among the six biotopes present in the study area: 22 plots in "Holm oak stands with shrubs" (Hos), 13 plots in "Holm oak stands" (Ho), 4 plots in "Pastures and grasslands" (Pp), 2 plots in "Cork oak stands with shrubs" (Cos), 2 plots in "Shrubs" (S) and 2 plots in "Stream margins vegetation" (Sv).

All the plots were sampled monthly, from November of 2006 to April of 2007. During this period all the carpophores were identified, collected to evaluate the species productivity (number of carpophores) and some specimens were preserved for the reference collection (Herbarium of the Évora University - UEVH).

The climate data were obtained at the nearest station, the Meteorological Station of Amareleja.

To characterize the vegetation in each plot, the following parameters were measured: tree layer - maximum height, diameter at breast height (DBH), canopy diameter for each specie; shrub layer - mean height and coverage for each specie; herbaceous layer - mean height and coverage for each group (*Poaceae*, *Asteraceae*, *Fabaceae* and Others); ground layer - mosses/lichens coverage. The orientation and inclination degrees of the plots, organic layer height (leaf litter), soil water content, soil pH, soil organic matter and the presence/pressure of livestock were also estimated.

The species potential distribution maps were generated in ArcView GIS 3.2., using the inverse distance weighting (IDW) method.

The species richness (S) and Pielou's equitability (J') indexes were estimated for each biotope.

To evaluate species spatial patterns a Principal Components Analysis (PCA) was performed, considering the species productivity in the sampling plots and its relation with environmental variables. Correlated environmental variables were excluded from the analysis. The statistical software package SPSS (v.14.0, 2005) was used to calculate descriptive statistics and perform statistical tests.