MORPHO-PRODUCTIVE AND GENETIC DIVERSITY OF *PLEUROTUS ERYNGII* SPECIES-COMPLEX IN ITALY

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The genetic and phenotypic diversity of *Pleurotus eryngii* genepool is a prerequisite to correctly distinguish genotypes for traits of interest and to identify strains with high yield potential. A population of 142 strains, composed of isolates mostly belonging to *P. e. var. eryngii*, var. *ferulae* and var. *nebrodensis* from different Italian geographic origins and to commercial and unverified strains (isolates whose host specificity was unknown), was studied for quantitative (shape, size and yield), qualitative (colour, malformations and growing behaviour) and molecular (RAPD and minisatellite) traits. A replicated cultivation trial, with three blocks and three replicates for each strain within block, was used as experimental design to calculate more precise trait estimates.

High significant differences were observed among strains for number and weight of basidiomata, while no significant differentiation was observed among geographic origins and taxonomic groups. Qualitative morphological traits were useful to differentiate isolates of *P. e. var. nebrodensis*. On average, yield per strain (weight of basidiomata) was more correlated with basidiomata number than with size. The most stable yield traits were number and weight of basidiomata per strain. An average heritability of 0.31 was estimated for yield related traits. A significant difference between *ferulae* and *eryngii* varieties was detected for speed of basidiomata production measured as ‘average harvest time’. Molecular markers showed a high level of within population heterogeneity and a low but significant degree of differentiation among groups *a priori* defined. None population specific marker was detected and the differential pattern of variation between *ferulae* and *eryngii* varieties were due to frequency dependent alleles.