MYCELIAL GROWTH AND PRODUCTIVITY AT LAB SCALE OF NATIVE AND HYBRID *Pleurotus* spp. STRAINS ISOLATED FROM THE MIXTEC OAXACAN REGION

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Introduction. The *Pleurotus* spp. genus includes a diverse group of aromatic edible fungi which have been praised for their high nutritional value as they are rich in protein, fiber, vitamins and minerals (1), as well as for their therapeutic properties (2) and diverse environmental and biotechnological applications (1).
The main aim of this research was to collect and characterize the germplasm of two native wild strains from the Mexican Mixtec region. Morphology and mycelium growth rate characteristics were compared between native, neohaplonts and hybrid strains. The relationship between growth rate, spawn colonization and productivity at lab scale was evaluated.

Methods. Carpohores of the *Pleurotus* ssp., native strains denoted as LB-051 and LB-050 were isolated from rotten tree trunks of cazahuate. The chemical dedikaryotization method proposed by Leal-Lara and Eger-Hummel (3) was used for obtaining the neohaplonts and hybrid strains. The times of homogenization and incubation in PGS were adjusted. To determine the growth rate of mycelium on MEA and spawn at 28°C, the diameter of the colony and the growth height, respectively were measured every 24 h. A linear model was used to fit to the mycelial growth kinetics. Lab scale cultivation was carried out using cylindrical polyethylene bags filled with 1 kg of wheat straw, the straw was chopped (~ 3-5 mm long) and pasteurized by using water steam for 3 h. The substrate was drained out, cooled down at 25 °C and then inoculated with 150g of mycelial spawn grown in sterile wheat grains. Each bag was incubated at 18 ± 2 °C in a dark room for 15-20 days approximately, and then moved to the production area at 21 ± 4 °C and 80-85% of humid atmosphere. The productivity was expressed as the average percent mushroom production in g per kg of dry wheat straw (%E.B).

Results. LB-050 (white color) and LB-051 (pink color) strains presented a mycelial morphology of cottony texture with differences in density, growth and pigmentation when growing in MEA. Pairing of compatible neohaplonts resulted in 56 hybrid strains. Cottony mycelia presented significantly higher growth rates ($p<0.01$) in comparison with floccose mycelia. The mycelial morphology had a high correlation with the growth rate. The indices of growth rate on MEA, spawn and productivity for the selected strains are shown in Figure 1.

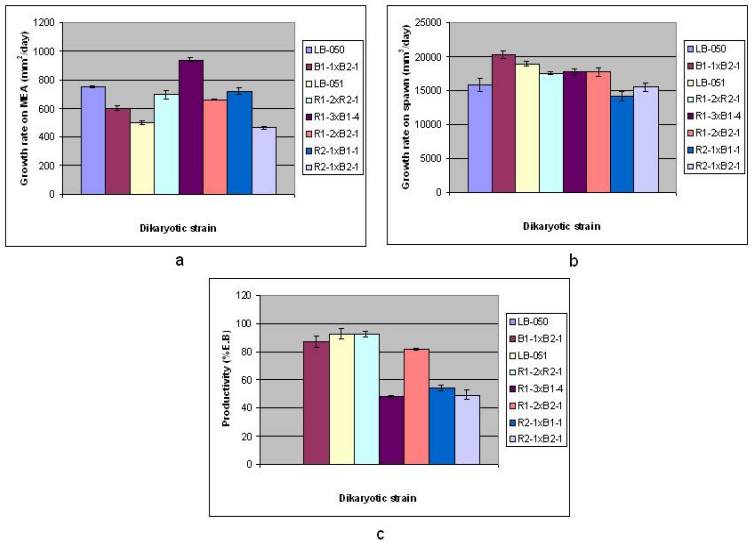

Figure 1. Growth rate on MEA (a) , spawn colonization (a) and productivity for the selected *Pleurotus* spp strains. LB-50 and LB-51 native strains, B1-1xB2-1 and R1-2xR2-1 reconstituted strains, R1-3xB1-4, R1-2xB2-1,R2-1xB1-1 and R2-1xB2-1 hybrid strains

Conclusions. The germplasms of two *Pleurotus* ssp. native strains from the Mexican Mixtec region were isolated. The mycelium morphologic characteristics and growth rates are highly correlated and these properties varied remarkably for the different strains. However, no correlation was observed between growth rate on agar, spawn colonization and productivity. The use of neohaplonts compatible pairing promoted the production of strains with higher mycelial growth rates and productivities in comparison with those of the native strains.

References.

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