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LIGNINOLYTIC ENZYME ACTIVITIES AND COLONIZATION BY *Anthracophyllum discolor* ON LIGNOCELLULOSIC SUPPORTS

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The increasing expansion of agro-industrial activity has led to the accumulation of a large quantity of lignocellulosic residues from wood (e.g. wood chips), herbaceous (e.g. switchgrass), agricultural (e.g. wheat straw), forestry (e.g. sawdust) and various industrial wastes all over the world. These residues results in pollution of the environment and in loss of valuable materials that can be bioconverted to several added-value products. Recently, many studies have demonstrated the importance of utilizing lignocellulose residues for enhancing production of extracellular phenoloxidase enzymes by white-rot fungi.

White-rot fungus *Anthracophyllum discolor* native of Southern of Chile was studied for their ability to growth and produce ligninolytic enzymes on different lignocellulosic support formulated from wheat straw, chicken feed and flaxseeds in order to identify their biodegradation potential. The ligninolytic enzymes laccase (Lac), manganese peroxidase (MnP), manganese independent peroxidase (MiP), and lignin peroxidase (Lip) were measured during the experiments. The colonization of these supports was measured for 12 at the beginning of the experiment.

An approximately 1 g (wet weight) sub sample of mechanically disrupted substrate-biomass composite was extracted with 5 ml of 50 mM sodium malonate (pH 4.5). The centrifuged (14,900 g) samples were stored up to 24 h at 4º C prior to analysis. All enzymes were detected. MnP gave the highest activity in all supports and lower quantity the laccase was detected. The higher activity obtained for laccase, manganese-independent peroxidase and lignin peroxidase in Flaxseed support were 38.75; 144.42 and 243.72 mmol min^{-1} g^{-1}, respectively. MnP in Chicken feed was 814.16 mmol min^{-1} g^{-1}.

The greatest growth colonization was observed on flaxseed support more than wheat straw and chicken feed. The main enzyme detected during experiment was MnP in all supports tested. Based on the results of experimental screening flaxseed have a potential for support material for biotechnological applications with *Anthracophyllum discolor*.

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