

# White-rot fungus *Phlebia floridensis* ITM 12: laccase production, oxidoreductase profile and hydrogen-peroxide independent activity.

Denis Magaña-Ortiz<sup>1</sup>, Laura M. López-Castillo<sup>2</sup>, and Roberto Amezcuita-Novelo<sup>3</sup>

<sup>1</sup>Tecnologico Nacional de Mexico

<sup>2</sup>Tecnologico de Monterrey

<sup>3</sup>Tecnológico Nacional de México

August 10, 2023

## Abstract

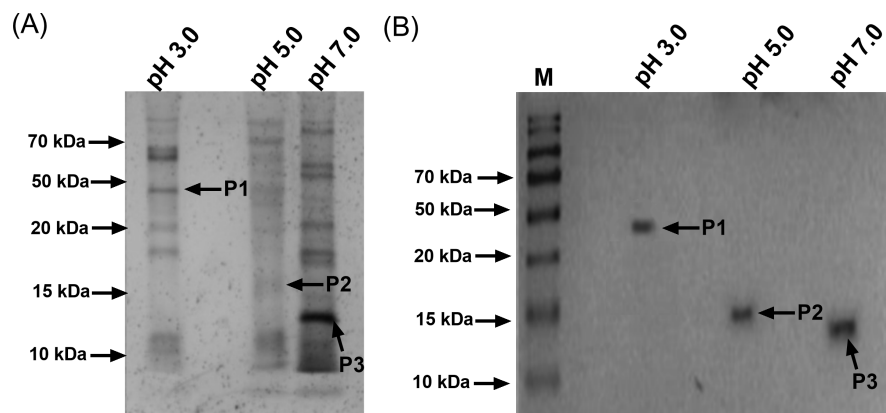
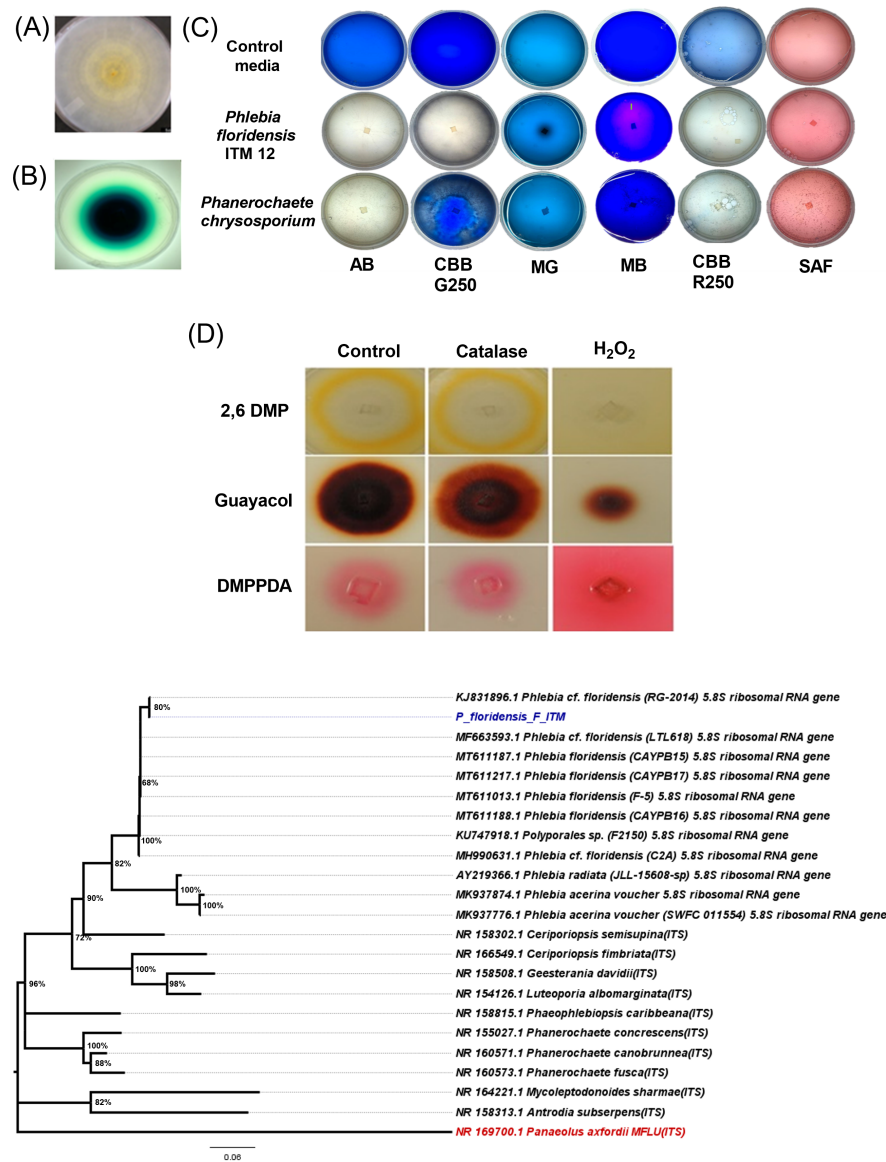
*Phlebia* genus is a relevant group of fungi with crucial role in numerous ecosystems. In tropical and subtropical areas this genus allows the efficient degradation of lignin and carbon recovery; however, the majority of these fungal species remains undiscovered. The main purpose of this work was to determine the enzymatic activity of extracellular proteins of a novel *Phlebia floridensis* strain isolated in Yucatan Peninsula, Mexico. The results that are reported here demonstrate that soluble protein extract of *P. floridensis* can degrade a broad spectrum of recalcitrant compounds. This induced protein extract is able to modify not only phenolic and non-phenolic compounds, but also anthroquinone dyes, even without addition of exogenous hydrogen peroxide. Using LC-MS/MS, we were able to identify a novel chloroperoxidase in enzymatic extract. As far as we know, this is the first report about the presence of this type of enzyme in *Phlebia* genus.

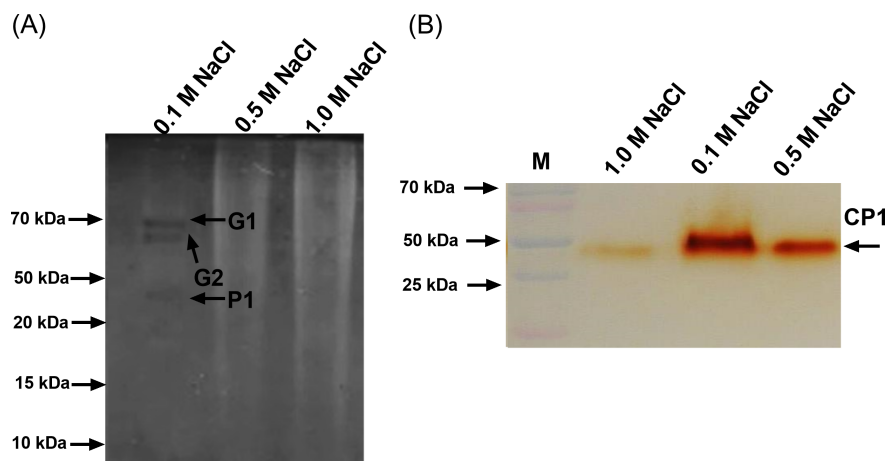
## Hosted file

Manuscript 2023 JBM.docx available at <https://authorea.com/users/651476/articles/659423-white-rot-fungus-phlebia-floridensis-itm-12-laccase-production-oxidoreductase-profile-and-hydrogen-peroxide-independent-activity>

## Hosted file

Table 1.docx available at <https://authorea.com/users/651476/articles/659423-white-rot-fungus-phlebia-floridensis-itm-12-laccase-production-oxidoreductase-profile-and-hydrogen-peroxide-independent-activity>





## Hosted file

Figure 5.tif available at <https://authorea.com/users/651476/articles/659423-white-rot-fungus-phlebia-floricola-itm-12-laccase-production-oxidoreductase-profile-and-hydrogen-peroxide-independent-activity>