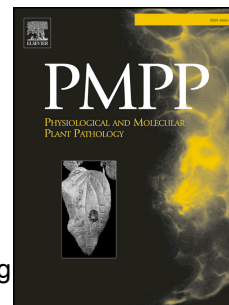


# Accepted Manuscript

Molecular cloning and expression analysis of *Ganoderma boninense* cyclophilins at different growth and infection stages

Fook-Hwa Lim, Iskandar Nor Fakhrana, Omar Abd Rasid, Abu Seman Idris, Chai-Ling Ho, Noor Azmi Shaharuddin, Ghulam Kadir Ahmad Parveez



PII: S0885-5765(16)30060-1

DOI: [10.1016/j.pmpp.2016.05.005](https://doi.org/10.1016/j.pmpp.2016.05.005)

Reference: YPMPP 1195

To appear in: *Physiological and Molecular Plant Pathology*

Received Date: 11 August 2015

Revised Date: 12 May 2016

Accepted Date: 21 May 2016

Please cite this article as: Lim F-H, Fakhrana IN, Rasid OA, Seman Idris A, Ho C-L, Shaharuddin NA, Ahmad Parveez GK, Molecular cloning and expression analysis of *Ganoderma boninense* cyclophilins at different growth and infection stages, *Physiological and Molecular Plant Pathology* (2016), doi: 10.1016/j.pmpp.2016.05.005.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

**MOLECULAR CLONING AND EXPRESSION ANALYSIS OF *Ganoderma boninense* CYCLOPHILINS AT DIFFERENT GROWTH AND INFECTION STAGES**

FOOK-HWA LIM <sup>1,3</sup>, ISKANDAR NOR FAKHRANA <sup>1</sup>, OMAR ABD RASID<sup>1</sup>, ABU SEMAN IDRIS <sup>1</sup>, CHAI-LING HO <sup>2,3</sup>, NOOR AZMI SHAHARUDDIN<sup>2</sup> AND GHULAM KADIR AHMAD PARVEEZ <sup>1</sup>

<sup>1</sup>Malaysian Palm Oil Board , 6, Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia

<sup>2</sup>Faculty of Biotechnology and Biomolecular Sciences, University of Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia

<sup>3</sup>Institute of Tropical Agriculture, University of Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia

**Abstract**

Oil palm is subjected to various diseases including Basal Stem Rot (BSR) which is mainly caused by the basidiomycetes fungi, *Ganoderma*. However, studies on the fungal infection mechanism especially at molecular level and the biological processes involved are still very limited. Fungal cyclophilin (CYP) has been reported to be involved in fungal pathogenicity but involvement of CYP in the pathogenicity of *G. boninense* has not been revealed yet. The main objective of this study is to isolate cDNAs encoding CYP and to profile the expression level of these transcripts during infection stages of *G. boninense*. In this study, five full-length cDNAs encoding CYP were successfully isolated from *G. boninense*. They were classified as different family members of CYP because significant differences could be observed on their coding, 5' or 3' un-translated regions (UTRs). The expression of these five CYP transcripts in different type of *G. boninense* tissues and the infecting mycelia tissues was studied using real time quantitative PCR (qPCR). Based on the expression results and analysis, the potential functions of these CYP transcripts were predicted to be involved in the development of fruiting body (GbCYP201) and fungal stress response or pathogenicity (GbCYP203 and GbCYP205).

**Keywords:** Basal Stem Rot (BSR); *Ganoderma boninense*; Cyclophilin (CYP); oil palm; real-time quantitative PCR (qPCR).

Correspondence: [omar@mpob.gov.my](mailto:omar@mpob.gov.my)

Download English Version:

<https://daneshyari.com/en/article/5592592>

Download Persian Version:

<https://daneshyari.com/article/5592592>

[Daneshyari.com](https://daneshyari.com)