

Accepted Manuscript

Suppression of root-knot disease in *Pogostemon cablin* caused by *Meloidogyne incognita* in a rhizobacteria mediated activation of phenylpropanoid pathway

Bitupon Borah, Reshma Ahmed, Marine Hussain, Pinkee Phukon, Sawlang Borsing Wann, Debojit Kr Sarmah, Brijmohan Singh Bhau

PII: S1049-9644(18)30003-3

DOI: <https://doi.org/10.1016/j.biocontrol.2018.01.003>

Reference: YBCON 3698

To appear in: *Biological Control*

Received Date: 21 March 2017

Revised Date: 8 December 2017

Accepted Date: 6 January 2018



Please cite this article as: Borah, B., Ahmed, R., Hussain, M., Phukon, P., Wann, S.B., Sarmah, D.K., Singh Bhau, B., Suppression of root-knot disease in *Pogostemon cablin* caused by *Meloidogyne incognita* in a rhizobacteria mediated activation of phenylpropanoid pathway, *Biological Control* (2018), doi: <https://doi.org/10.1016/j.biocontrol.2018.01.003>

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.

Suppression of root-knot disease in *Pogostemon cablin* caused by *Meloidogyne incognita* in a rhizobacteria mediated activation of phenylpropanoid pathway

Bitupon Borah^{a,1}, Reshma Ahmed^b, Marine Hussain^{a,1}, Pinkee Phukon^a, Sawlang Borsing Wann^b, Debojit Kr Sarmah^a and Brijmohan Singh Bhau^{a*#}

^aPlant Genomics Laboratory, Medicinal Aromatic and Economic Plant Group,

^bBiotechnology Group, Biological Sciences & Technology Division, CSIR-North East Institute of Science & Technology, Jorhat-785006, Assam, India

¹Academy of Scientific and Innovative Research, CSIR-North East Institute of Science & Technology, Jorhat 785006, Assam, India, India.

[#]Present address: Department of Botany, Central University of Jammu, Rahya-Suchani (Bagla), District – Samba-181143, Jammu, Jammu & Kashmir, India

***Corresponding author**

E-mail address: bsbhau@gmail.com; bsbhau@neist.res.in (Brijmohan Singh Bhau)

ABSTRACT

Biological control of plant diseases using Plant Growth Promoting Rhizobacteria (PGPR) is an emerging technique, not only because it provides control over the disease, but also acts in an eco-friendly way. In this study the isolated *Pseudomonas putida* strain, BG2 (KU312064.1) and *Bacillus cereus* BC1 (KX762284), promoted growth as well as provided resistance to *Meloidogyne incognita* infection. From the gene expression analysis it was found that both the strains activated phenylpropanoid pathway through - overproduction of Phenylalanine ammonia lyase (PAL) enzyme. Further, the BG2 strain also activates the chalcone synthase enzyme leading to the synthesis of flavonoids, which are known to possess nematicidal activity. We finally concluded that the BG2 and BC1 strains can be a potential biocontrol agent to deal with root-knot disease of Patchouli caused by *M. incognita*, and of benefit for the overall growth of the plant including increase in essential oil yield.

Key-words: Patchouli, nematode, root-knot, rhizobacteria, biocontrol

1. Introduction

The root-knot nematode (RKN), *Meloidogyne incognita*, is the most economically damaging plant parasitic nematode group widely distributed throughout

Download English Version:

<https://daneshyari.com/en/article/8877713>

Download Persian Version:

<https://daneshyari.com/article/8877713>

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