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INDUCTION OF BLAST DISEASE RESISTANCE IN RICE PLANTS BY ENDOPHYTE FUNUS *Piriformospora indica* *

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Abstract

Blast is a major disease of rice in Iran, causing severe damage in nursery and field. *Piriformospora indica* is a plant-root-colonizing fungus that can induce systemic resistance against different root and shoot pathogens. In this study expression rate of several defense genes in rice plant with or without *P. indica* treatment at different time points after inoculation with rice blast fungus (*Magnaporthe oryzae*) was evaluated using real-time qPCR. Rice seedlings were treated with mycorrhiza and spore suspension of the pathogen (*M. oryzae*) evaluation of the disease in plants treated and non-treated with *M. oryzae* and *P.indica* revealed that treated plants had less severe disease symptoms. Study on infection type, affected leaf area and number of lesions showed significant reduction of symptoms in treated plants compared to control. Also, expression amount of *PR1b*, *LOX*, *NPR1* and *WRKY85* genes increased in plants treated with mycorrhiza in comparison to control. Results of this study suggest the active role of mycorrhiza in protection of rice plant against blast disease due to enhanced expression of related defense genes.

Keywords: Defense genes, Mycorrhiza, Real-time PCR, Systemic resistance, Rice blast.

See Persian text for figures and tables (Pages ۲۵۵-۲۶۷).

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