

### *Short Report*

## **POSSIBLE SYMBIOSIS AND EVALUATION OF ENDOMYCORRHIZAL FUNGUS *Piriformospora indica* EFFECTS IN RICE PLANT**

**S. H. MOUSAVI<sup>1</sup>, B. SHARIFNABI<sup>1</sup>, V. BABAEIZAD<sup>2</sup>, S. M. ALAVI<sup>3</sup>,  
M. A. TAJICK GHANNBARI<sup>2</sup> and A. MASSAH<sup>1</sup>**

1. College of Agriculture, Isfahan University of Technology

2. College of Agriculture, Sari Agricultural Sciences and Natural Resources University

3. Genetics and Agriculture Biotechnology Institute of Tabarestan

### **Abstract**

The mycorrhizal fungi are the most important micro-organism among the soil micro flora which via genetical, physiological and ecological changes lead to more yield in symbiotic plants. The *Piriformospora indica* Sav. Verma, Aj. Varma, Rexer, G. Kost & P. Franken 1998, is one of well known endomycorrhizal fungus with different beneficial effects on diverse monocots (Poaceae) and dicots (Brassicaceae and Chenopodiaceae) plants. *P. indica* belongs to Sebaciales, Hymenomycete and Basidiomycota phylum. It has been reported that *P. indica* is capable to symbioses with different plants. Several studies showed that *P. indica* increases root and stem length in plants via induction of growth promotion hormones, more absorption of nutrients such as phosphorus and increase tolerance to salinity and drought stresses. As well *P. indica* causes induction of systemic acquired resistance against different diseases on roots and shoots. In this study *P. indica* (kind gift from Prof. Kogel, Head of Institute of Phytopathology and Applied Zoology, University of Giessen, Germany) culture was grown on complex medium (CM) at 27 °C for one month. Disinfected rice (Local Cv.Tarom) seeds with 1% active chlorine were germinated on water soaked filter paper in Petri plates. Four days old seedling immersed in 10<sup>6</sup> ml<sup>-1</sup> of *P. indica* chlamyospores suspension for 12 hours and shacked with 40 rpm. Infected and mock seedlings transferred in plates containing aqueous uchida medium for planting in soil. To detect of *P. indica* roots samples were stained with ink following by Vierheilig *et al.* method with minor changes. Molecular detection of *P. indica* in plants carried out using Tef specific primer pairs (accession no. AJ249911). Result of this study showed that treated plants with *P. indica*, contain round to pear shaped chlamyospore formed in infected roots. The rate of tillering increased up to 50% in *P. indica* infected plants. As well as, the number of fertilized spikes and root length increased noticeably in *P. indica* treated rice plants. Studying of induced diseases resistance in *p. indica* treated rice plants is under progress. This is the first report of symbiosis in Iranian local rice cultivar and *P. indica*.