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## Intraspecific Functional Variation of Arbuscular Mycorrhizal Fungi Originated from Single Population on Plant Growth

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Arbuscular Mycorrhizal Fungi(AMF) is widespread symbiont forming mutualistic relationship with plant root in terrestrial forest in ecosystem. They provide improved absorption of nutrient and water, and enhance the resistance against plant pathogen or polluted soil, therefore AM fungi are important for survival and maintaining of individual or community of plant. For last decade, many studies about the functional variation of AM fungi on host plant growth response were showed that different geographic isolates, even same species, have different effect on host plant. However, little was known about functional variation of AM fungal isolates originated single population, which provide important insight about intraspecific diversity of AMF and their role in forest ecosystem.

In this study, four AM fungal isolates of *Rhizophagus clarus* were cultured in vitro using transformed carrot (*Daucus carota*) root and they showed the difference between isolates in ontogenic characteristics such as spore density and hyphal length. The plant growth response by mycorrhizas were measured also. After 20 weeks from inoculation of these isolates to host plants, dry weight, Root:Shoot ratio, colonization rates and N, P concentration of host plant showed host plant was affected differently by AM fungal isolates. This results suggest that AM fungi have high diversity in their functionality in intraspecific level, even in same population.