

Publication**Efficacy of indigenous arbuscular mycorrhizal fungi for promoting white yam (; *Dioscorea rotundata*;) growth in West Africa****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 487820**Author(s)** Tchabi, Atti; Coyne, Danny; Hountondji, Fabien; Lawouin, Louis; Wiemken, Andres; Oehl, Fritz**Author(s) at UniBasel** [Wiemken, Andres M.](#) ;**Year** 2010**Title** Efficacy of indigenous arbuscular mycorrhizal fungi for promoting white yam (; *Dioscorea rotundata*;) growth in West Africa**Journal** Applied soil ecology**Volume** 45**Number** 2**Pages / Article-Number** 92-100**Keywords** Soil microbiota, Biodiversity, Arbuscular mycorrhiza, Tuber crop, Sustainable agriculture, Sub-Saharan Africa

Tuber yields of yam (*Dioscorea* spp.), a main staple food in West Africa, are steadily declining per unit area, an incidence for which decreasing soil fertility due to increasing land pressure is largely blamed. Recent studies demonstrated the association of a plethora of arbuscular mycorrhizal fungi (AMF) with yam, soil microorganisms crucial for natural soil fertility. Thus, inoculation of yam with AMF could help reverse declining yields, above all in soils with a strong loss of AMF diversity due to agricultural land use intensification. In a pot experiment, we studied the impact of indigenous and exotic AMF isolates on growth performance of micro-propagated white yam plantlets (*Dioscorea rotundata*, cv.TDr89/02461). Pots were inoculated with single spore derived isolates of *Glomus etunicatum*, originating from tropical environments in West Africa, South America and Asia and, for comparison, also with three isolates of other AMP species from temperate Europe. In addition, isolates of nine AMF species originating from sub-Saharan West Africa and three commercial AMF were compared. Six of the 11 isolates of *G. etunicatum* from the tropics increased yam tuber growth compared with non-mycorrhizal controls, whereas the European AMP species tended to be less efficient but led to an increased tuber phosphorus concentration. The African isolates of *G. mosseae*, *G. hoi*, *G. etunicatum*, *Acaulospora scrobiculata* and *A. spinosa* generally led to increased tuber growth compared with non-mycorrhizal controls, while isolates of *G. sinuosum* and *Kuklospora kentinensis* did not. Our study indicates that inoculation of micro-propagated yam plantlets with selected indigenous AMP could potentially constitute a sustainable measure to boost yam productivity again in degraded African soils. (C) 2010 Elsevier B.V. All rights reserved.

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