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Isolation and Characterization of Fungal Diversity from Crop Field Soils of Nigeria

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In order to find indigenous beneficial fungal species from crop field soils of Nigeria, 23 soil samples were collected from various places of Nigeria in June, 2013 and fungi were isolated through serial dilution technique. Isolated fungi were purified and differentiated according to their morphological and microscopic characteristics. In total, 38 different representative isolates were recovered and the genomic DNA of each isolates was extracted using QIAGEN® Plasmid Mini Kit (QIAGEN Sciences, USA) and the identification of fungi was carried out by sequence analysis of internal transcribed spacer (ITS) region of the 18S ribosomal DNA (18S rDNA). Recovered isolates belonged to 9 fungal genera comprising *Fusarium*, *Aspergillus*, *Chaetomium*, *Coniothyrium*, *Dipodascaceae*, *Myrothecium*, *Neosartorya*, *Penicillium and Trichoderma*. *Aspergillus* spp., *Penicillium* spp. and *Trichoderma* spp. were the most dominant taxa in this study. The antagonistic potentiality of species belonged to *Trichoderma* against 10 phytopathogenic fungi (*F. oxysporum*, *C. gloesporoides*, *P. cytrophthora*, *A. alternata*, *A. solani*, *S. rolfsii*, *F. solani*, *R. solani*, *S. sclerotiorum and P. nicotiana*) was assessed *in vitro* using dual culture assay. The dual culture assay results showed varied degree of antagonism against the tested phytopathogens. The potential *Trichoderma* spp. will be further evaluated for their antagonistic and plant growth promotion potentiality under *in vivo* conditions.