

## Characterization of Fungal Endophytes in Leaves, Stems and Roots of African Yam Bean (*Sphenostylis stenocarpa* Hochst ex. A. Rich Harms)

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**Abstract :** African yam bean (AYB), (*Sphenostylis stenocarpa*) is a leguminous crop that provides nutritionally rich seeds, tubers and leaves for human consumption. AYB potentials as an important food security crop is yet to be realized and thus classified as underutilized crop. Underutilization of the crop has been partly associated with scarce information on the incidence and characterization of fungal endophytes infecting vascular parts of AYB. Accurate and robust detection of these endophytic fungi is essential for diagnosis, modeling, surveillance and protection of germplasm (seed) health. This work aimed at isolating and identifying fungal endophytes associated with leaves, stems and roots of AYB in Ogun State, Nigeria. This study investigated both cultural and molecular properties of endophytic fungi in AYB for its characterization and diversity. Fungal endophytes were isolated and culturally identified. DNA extraction, PCR amplification using ITS primers and analyses of nucleotide sequences of ribosomal DNA fragments were conducted on selected isolates. BLAST analysis was conducted on consensus nucleotide sequences of 28 out of 30 isolates and results showed similar homology with genera of *Rhizopus*, *Cunninghamella*, *Fusarium*, *Aspergillus*, *Penicillium*, *Alternaria*, *Diaporthe*, *Nigrospora*, *Purpureocillium*, *Corynespora*, *Magnaporthe*, *Macrophomina*, *Curvularia*, *Acrocalymma*, *Talaromyces* and *Simplicillium*. Slight similarity was found with endophytes associated with soybean. Phylogenetic analysis by maximum likelihood method showed high diversity among the general. These organisms have high economic importance in crop improvement. For an instance, *Purpureocillium lilacinum* showed high potential in control of root rot caused by nematodes in tomatoes. Though some can be pathogens, but many of the fungal endophytes have beneficial attributes to plant in host health, uptake of nutrients, disease suppression, and host immunity.

**Keywords :** molecular characterization, African Yam Bean, fungal endophyte, plant parts

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