# Plant Growth Promoting Capabilities of Endophytic Fungal Isolates from *Terminalia arjuna*

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Endophytic fungi that have synergistic interactions with their host plants are well-known for boosting plant growth and minimizing the negative effects of environmental stresses. This study was carried out with the objective of isolating and identifying putative endophytic fungi from *Terminalia arjuna* and screening them for plant growth promoting properties. Leaves and roots were collected from *Terminalia arjuna* plants from two sites in the wet and dry zones of Sri Lanka. Leaves and roots were triple surface-sterilized using 70% ethanol and 5% sodium hypochlorite and sterile distilled water. After surface sterilization, leaves and roots were dried and cut into 1 cm pieces before plating on antibiotic supplemented potato dextrose agar. A total of 24 putative endophytic fungal isolates were recovered. Based on morphological traits such as colony shape, color, elevation, and growth rate, these isolates were classified into 15 different morphotypes. Seven morphotypes were selected to assess their ability to produce Indole Acetic Acid (IAA). These isolates were further screened to assess their ability to solubilize phosphate, produce siderophores, and for cellulolytic activity. Six of the seven isolates generated IAA, with RO1A having the highest concentration (0.750 µg/mL). Four of the seven isolates produced siderophores, with RO1A yielding the highest index of 4.2 ± 0.2. Five of the seven isolates were able to solubilize phosphate, with RO1A having the highest capacity (phosphate solubilizing index of 6.3 ± 0.29). All the isolates demonstrated cellulase activity, with isolate LLL02A showing the highest cellulolytic activity with an index of 2.197± 0.00579. Isolate RO1A provided positive results for all the plant growth promoting tests. This study demonstrated the significant plant growth-promoting potential of *Terminalia arjuna*-associated endophytic fungi.

***Keywords***: *Terminalia arjuna, Endophytes, Indole Acetic Acid, Siderophores, Cellulase*