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Molecular identification of an efficient phosphate solubilizing fungus

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Plants take up phosphorus (P) as phosphate anions. Although P is abundant in soil, the majority remains as insoluble forms. This is because P anions are extremely reactive with some cations in soil in alkaline and acidic pH. In the environment, these immobilized P is converted to mobilized forms by soil microorganisms. Soil fungi play an important role in converting highly insoluble mineral phosphates in the environment into plant accessible forms. Utilization of such organisms in agriculture has a considerable economic importance in developing countries as an alternative, low cost, eco-friendly natural phosphate bio-fertilizer. In previous studies, 11 phosphate solubilizing fungi (PSF) have been isolated from bulk and rhizosphere soils from different agro-ecological zones in Sri Lanka and KBF4 fungus has been identified as the most efficient phosphate solubilizer among them.

The present study focused on identifying KBF4 fungal isolate. According to the morphological and reproductive characteristics obtained in slide cultures, isolate KBF4 was identified as an *Aspergillus* species. Further identification was carried out using molecular techniques.

For DNA extraction, the Promega Wizard ® DNA extraction kit was employed. PCR was carried out for the extracted KBF4 fungal DNA using ITS1 and ITS4 primers which are forward and reverse primers, respectively. Amplified products gave DNA bands of approximately 500 bp. These gel bands were excised, purified and directed for sequencing. The sequence results were analyzed using BLASTn program. The results indicated that KBF4 fungus showed 97 % similarity to *Aspergillus aculeatus*. This identification would help in future research work, aimed at mass production and commercialization of an efficient phosphate soubilizer.

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