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ISOLATION, PHENOTYPIC AND GENOTYPIC CHARACTERIZATION OF METALLOTOLERANT FUNGAL ISOLATES FROM INDUSTRIAL SOIL

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Soil environment is polluted with heavy metals as a result of increasing industrialization, mining and more advancement in technology. Some of the main contaminations are controlled and uncontrolled discharge of solid and liquid wastes, accidental spillages, herbicides, insecticides, pesticides, agriculture fertilizers, sewage disposal, explosives and tar into the environment. Worldwide major health alarming related to random release of heavy metals into the soil and waters and exposure of extreme concentrations of these heavy metals can cause rigorous harmful effects to animals, plants and human, as they cannot be converted to non-toxic forms and therefore have long-term effects on the flora and fauna. The current study was focused on isolation, phenotypical and genotypical characterization of metallotolerant indigenous fungal strains by using heavy metal contaminated soil of Hattar Industrial Estate, Haripur. First, these isolates were identified based on their morphological and microscopic analysis. Then, they were confirmed by amplification and analysis of their specific internal transcribed spacers (ITS) sequences, allowed discrimination of the metallotolerant indigenous fungal isolates as *Aspergillus niger* M1, *Aspergillus flavus* M2, *Penicillium chrysogenum* M3, *Aspergillus parasiticus* M4, *Pencillium notatum* M5, *Aspergillus terreus* M6, *Fusarium solani* M7 and *Aspergillus fumigatus* M8. Furthermore, all the isolated fungal strains were found highly resistant to heavy metals especially to Cadmium (cd), Copper (cu), Lead (Pb) and Mercury (Hg). Thus heavy metal contaminated soil might be considered as a precious natural source of resistant fungal strains, which can be used significantly as a bioleaching or bioremediation tool.

Biography

Ibrar Khan has completed his PhD from Ocean University of China. He is an Assistant Professor at Department of Microbiology, Abbottabad University of Science & Technology, Pakistan. He has published more than 20 papers in reputed journals.

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