



Screening of Endophytic Fungi and their Tolerance against Heavy Metals

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Abstract:

Rapid rise in the population, urbanization and industrialization leads to buildup wide range of contaminants especially; heavy metals like Cd, Cr, Hg, Pb etc, in the environment, which can adversely affect the beneficial soil microbes and plant growth. These heavy metals are introduced from various agrochemicals such as pesticide, fertilizers and other anthropogenic activities. Pollution of soil and water with toxic heavy metals is a major problem faced by human being around the world. So there is an urgent need for the remediation of such toxic contaminants from the environment. The current research we explored endophytic fungi from the native plant roots of heavy metal contaminated soil. The native plants belong to the genus of Parthenium, Xanthium, Cassia, Alternanthera, Datura, Calotropis, Corchorus, and Chrysopogon. Total 12 morphologically different endophytic fungi were isolated from plant roots. In the present study, we found some fungal isolates can tolerate heavy metals such as Pb and Cr up to 100 ppm and Cd and Hg up to 50 ppm concentration. These fungal isolates will be identifying by sequencing ITS-1 and ITS-4 region of ribosomal RNA. These fungal cultures might have potential application for remediation of contaminated sites along with hyper accumulator plants. In the microbe-assisted phytoremediation, fungal species increases uptake of heavy metals through plant rhizosphere and also facilitates in the uptake of various toxic metals. We proposed the use endophytic fungi, which are known to tolerate and detoxify heavy metals and will be employed in the phytoremediation of heavy metals from the contaminated soils.

Biography:

Ashwinkumar P. Rudrashetti has completed PhD in microbiology (2019) from CSIR-NEERI and R.T.M. Nagpur



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Publication of speakers:

1. Dwivedi, Kshitiz & Rudrashetti, Ashwinkumar & Chakrabarti, Tapan & Pandey, Ram Avtar. (2018). Transformation Products of Carbamazepine (CBZ) After Ozonation and their Toxicity Evaluation Using Pseudomonas sp. Strain KSH-1 in Aqueous Matrices. Indian Journal of Microbiology. 58. 10.1007/s12088-018-0715-3..
2. Rudrashetti, Ashwinkumar & Dwivedi, Kshitiz & Sharma, Abhinav & Duvvuri, Bhavya & Juwarkar, Asha & Pandey, Ram. (2017). DEGRADATION OF SULFAMETHOXAZOLE BY UV-ASSISTED ADVANCED OXIDATION PROCESSES IN AQUEOUS MATRICES: A COMPARATIVE KINETIC STUDY. Journal of Indian Water Works Association. 49. 101-109.

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